

REPLACING THE BIG SHIPS

See Page 2



VOL. LXXXI No. 2094

[Registered at the G.P.O.
as a newspaper]

LONDON, MAY 16, 1959

SOME BUS OPERATING PROBLEMS

See Page 3

PRICE NINEPENCE

Inquiry into Rural Bus Services

AS would be gathered from our leading article last week, there is continued dissatisfaction in the bus industry regarding the excessive taxation handicaps under which it has to operate. In no direction is this being felt more than in connection with rural services. This fact was acknowledged by Mr. Heathcoat Amory, Chancellor of the Exchequer, in his recent Budget speech, when he said that in the past few years, because of the increase in the number of private cars and motor cycles, bus operators in the rural areas had encountered increasing difficulties in maintaining their services. Some very slight gratification, therefore, has been engendered by a statement by the Minister of Transport in the House of Commons on May 8 that he proposes to set up a small committee "to review trends in rural bus services" and hopes to announce its membership soon. In a written parliamentary answer to Colonel Tufton Beamish, Conservative member for Lewes, Mr. Watkinson stated that in the light of the concessions that the Government had recently made to the bus industry he considered this a useful moment to review the problems of the bus companies operating in rural areas. The concessions to which the Minister referred fell far short of bus operators' expectations. Announced in the Budget, they consisted of a reduction in the road fund licence duty payable on buses and coaches to about one-third. Nothing short of the total abolition of the penal duty on fuel oil will, in fact, fully satisfy the bus industry. By admitting the possibilities of certain variations in fuel taxation the Chancellor has weakened the hoary argument of his predecessors on the difficulties of a concession to certain users only. That he does not really understand the economic situation of rural bus operators was, however, demonstrated by Mr. Heathcoat Amory's statement in dealing with the Finance Bill in the House of Commons on Monday of this week.

Temple Mills Marshalling Yard

NOW virtually completed, the new marshalling yard at Temple Mills has been handling London area traffic for the Great Eastern Line of the Eastern Region for some months. A detailed description will shortly appear in our columns, but in the meantime we congratulate the chief civil engineer and the traffic department on the way in which over the past 3½ years co-operation between departments has enabled the old group of 10 small yards to be remodelled, while under traffic, into a comprehensive yard of the most modern character with automatic point setting, automatic operation of the primary retarders and greatly improved manual control of the secondary retarders farther down the hump. Two panel-operated signalboxes (Temple Mills East and Temple Mills West) and one mechanically-operated box (Manor Yard) now replace six old mechanical boxes at Chobham Farm, Loop Junction, Loughton Branch Junction, Lea Bridge, Temple Mills North and Temple Mills South. A great improvement has been made in traffic working by the new yard, which has enabled the closing of several smaller marshalling yards, including Goodmayes Up, Broxbourne, Thames Wharf, Mile End and Northumberland Park. From 1880 onwards Temple Mills and its subsidiary marshalling yards just grew piecemeal; the new yard enables traffic to be fed into East Anglia from the south more efficiently and on an economical basis.

Cargonised Freight

SIMPLICITY has been the passport to success for many an invention and it could be no less true of the Cargon system of freight handling, the latest developments in which are reported on page 14. This, as many readers will recall, is a system employing mobile loading boards successfully introduced some years ago on the high-frequency air freight ferry between North and South Island in New Zealand. Brought to this country by Fisher and Ludlow, Limited, it is now marketed by a new subsidiary,

CURRENT TOPICS

Cargon Transport (Great Britain), Limited. Low capital outlay, freedom from mechanical complications (normally Cargons can be transferred from dock to vehicle platform by simple muscle power) and interchangeability between road, rail or air are its distinguishing features. Moreover, the vehicle may be freed for normal transport at all times. In this respect the system scores over the master body pallet which has lately been in the news. Given suitable conditions at the loading and unloading point it is possible to envisage a field for Cargons, though further technical development will doubtless be necessary. It

Britain and on the Continent and 10 years later it became a limited company. Today it is responsible for the sales organisation throughout the world. From 1930 to 1949 the lake was under American control, but today Colonel Kenneth Previté is chairman of the Trinidad Lake Asphalt Co., Limited, which was formed in Trinidad to take over the lease, so that it is a Commonwealth enterprise of which the original company, a centenarian in years but young in spirit, is now a highly revered subsidiary. Four grandsons of Joseph Weedon Previté are connected with the business today to carry on its tradition.

LEADING FEATURES IN THIS ISSUE

Portrait	PAGE	Modern Airways Section	PAGE
The late Sir Archibald J. Boyd	9	Aeroflot Demonstrates Tu 104A	13
<i>Special Articles</i>			
Replacing the Big Ships	2	International Helicopter Rally	13
Contemporary Problems in Bus Operation. By A. J. White	3	<i>Regular Features</i>	
Unique Australian Transport Unit: Giant Trailer for Road or Rail Use	5	Commercial Aviation	9
Illuminations at Saltash Centenary	6	Financial Results	16
Railway Breakdown Practices: Comparison of Equipment (Cont.)	7	Forthcoming Events	6
B.T.C. Fares: Interim Decision of Tribunal	9	Important Contracts	16
Derby-Built Main-Line Diesel Locomotives: Sulzer-Crompton Parkinson Type 4 (Cont.)	11	In Parliament	9
Cargon Freight Handling System	14	Letters to the Editor	10
		Lorry, Bus and Coach News	4
		News from all Quarters	8
		Road Vehicle Industry	12
		Shipping and Shipbuilding	16
		Social and Personal	15
		Tenders Invited	16

is essential that early agreement be reached on standard board dimensions, both width and length, so that Cargons may be freely interchanged between carriers on land, sea or in the air, especially in international transport. It would be a pity if the lessons of international pallet standardisation were not applied to this latest technique.

A Centenary in Asphalt

THE very spirit of the commerce of the City of London is reflected by the story of the house of Previté, which was founded just a century ago and has marked the occasion by a reception at the Mansion House (an unusual distinction specially granted by the Lord Mayor) and by publication of *A Century of Progress*, by John Oldaker. On March 5, 1859, Joseph Weedon Previté, then aged 23, opened the Cornhill office of Previté and Greig, insurance brokers and commission agents. The twin sides of the business prospered and in 1864 some work was done for Lord Dundonald, who had been shipping asphalt from Trinidad. The 110-acre Pitch Lake was then divided into 5-acre plots and leased by the Crown to a number of people. Realising the possibilities of the product, Joseph Previté and his associates gradually acquired plots until all but one held by the Crown was obtained. In America A. L. Barber had foreseen the road-surfacing potentialities of asphalt and from 1888 he operated the lake under a lease of all save one plot, while Previté and Company sold the asphalt in Europe. The arrangements between the two parties existed on trust for 42 years without any written agreement—a typical example of business enterprise with honour.

Other business associations of Joseph Previté, in shipping, insurance and stevedoring, have been maintained by his sons and grandsons. In 1898, under the Trinidad Lake Asphalt Paving Co., Limited, a forerunner of Limmer and Trinidad, King's Road, Chelsea, was laid in asphalt and after that road-making development was continuous. Other modern uses were also established, such as protection of electric cables. After 1926 the company concentrated wholly on the sales of Trinidad lake asphalt in

Ideas on New Bus Designs

THE authors of both papers presented at the Folkestone conference of the Public Transport Association indulged in speculative contemplation of the types of bus which would best meet the needs of operators with maximum economy. Mr. A. J. White, general manager of Maidstone and District Motor Services, Limited, of whose paper an abstract appears on page 3, felt that there were considerable possibilities in the standee type of single-decker and also that double-deckers might have the upper deck closed and be one-man operated during slack hours. Mr. F. H. Clayton, deputy general manager of the Liverpool undertaking, to whose paper we shall return in our next issue, was concerned with the double-decker and he also put forward the idea of a bus of which the lower deck only would be used in slack hours. This bus would seat 44 passengers downstairs and 51 on the upper deck and would have a rear engine. The floor of the lower saloon would be kept as flat and low as possible and the overall height of the bus, which would be 34 ft. 10 in. long and 8 ft. wide, would be within the low bridge range. The staircase would be on the nearside and approached directly from the front entrance.

Railway Regulation in Canada

SURVIVAL of Canada as a nation is no longer in doubt, says Mr. N. R. Crump, president of the Canadian Pacific Railway, in his annual statement. That being so, the public policies towards rail transport which were established long ago, and in which economic criteria were subordinated to political considerations, no longer hold good. Mr. Crump made these observations in relation to the announcement that a new Royal Commission is to be appointed to study the problems of rail transport. He hopes that the Commission will recognise that economic forces now prevail where previously political considerations held sway and that less rigid, more evenly distributed, regulation will result. In the meantime, however, the Government has ordered a rail rates "freeze"—unique in Canada inasmuch as it bears upon the private enterprise C.P.R. Of course, adds

its president, no comparable freeze on costs has been ordained. He instances grain rates as the most onerous of the anachronisms under which Canadian railways labour—"19th-century prices trying to live with 20th-century costs." It is estimated that the opening of the St. Lawrence Seaway has now exposed to maritime competition some two million tons of C.P.R. freight, worth more than \$38 million annually. Mr. Crump emphasises that he has no quarrel with publicly-owned transport; he asks only that all capital, whether public money or private, may earn a fair return for its investors.

Road Schemes Press On

UNDER the energetic ministrations of Mr. Harold Watkinson road affairs in this country, if still not proceeding as fast as Lord Derwent would like, can at least be said to have awoken from their slumbers. In reply to the debate on the civil estimates on a token vote in connection with traffic congestion in large cities, in which Mr. G. R. Strauss came out as a wholehearted advocate of the Victoria Line tube, the Minister of Transport extolled the virtues of our experiments with limited access roads, such as Cromwell Road Extension and the Birmingham Inner Ring road, where some of the difficulties with the urban motorway might be avoided. He referred to the possibilities, now under consideration, of link roads from the London—Birmingham motorway, giving it a connection from Marble Arch in London (at a cost of £30 million) and right to the centre of Birmingham. Renewed consideration of a London inner ring, despite its enormous cost, was being given. Introduction of "clear ways," on which stopping is penalised, was also good news. Mr. Watkinson appeared to deplore the loss of traffic lanes on such modernised roads as Victoria Embankment and Waterloo Bridge, but held out no hope of the parked cars being removed, while he continues in his conviction that once parking meters create some pressure, off-street parking facilities will follow, without appreciating the misery and disruption each parking meter scheme causes in the fringe areas to which the determined free parker transfers his allegiance. The debate was wound up by Mr. G. R. H. Nugent, Parliamentary Secretary, Ministry of Transport, who pointed at the prior claim of public transport over private cars in the Metropolis on the figures of user—a million by train and bus into the central area and only 70,000 cars. He was also optimistic on traffic engineering developments. We have some leeway to catch up—our one textbook is 25 years old whereas America has had an Institute of Traffic Engineers since 1930.

Weekend with History

SUPERB organisation of its tours again distinguished the annual general meeting weekend of the Railway and Canal Historical Society, the venue for which was this year Peterborough. The Saturday trips included visits to the Nene navigation below the city at Horsey Sluice (on the old course) and Dog-in-a-Doublé, where a lock 145 ft. long and 26 ft. wide was built by the Nene Catchment Board, which was established under legislation of 1930 and became the Nene River Board in 1952. The site of an early light railway, the 4-mile private line built between Edenham and Little Bytham by Lord Willoughby d'Eresby and operated between 1857 and 1872, was visited in the afternoon and at various places locks and bridges were inspected on the Welland Navigation, for the improvement of which an artificial cut was made from Stamford to Market Deeping soon after 1820. The Stamford terminus of the Stamford and Essendine (Marquis of Exeter's) Railway was seen, by courtesy of the present occupier, a furniture removal firm, and on the Sunday some of the mysteries at Wansford of the same company's Sibson line were set out. Most of Sunday was occupied in an inspection of the River Nene between Peterborough and Oundle; it is a navigation in very good order which enjoys negligible traffic over most of its length.

Long run or short run...

it's far better by

COMMER



NEW COMFORT, new power and new running economy are built into this fine new range of forward control Commers. A wide-vision cab, a new six-cylinder diesel engine with chrome-plated cylinder bores, superlative engineering craftsmanship to give sturdy, long-lasting reliability—all backed by the superb Rootes service organisation.

Other outstanding features are:

- ★ All-steel 3 seat cab—cool, comfortable and quiet.
- ★ Handsome appearance.
- ★ Separate fully-adjustable driver's seat.
- ★ Effortless handling and manoeuvrability.
- ★ Deep, panoramic, one-piece windscreen.
- ★ Chrome bore petrol engine also available.

COMMER

FORWARD CONTROL 4, 5 & 6 TONNERS

petrol or diesel

ROOTES DIESEL-ENGINED 7 TONNER ALSO AVAILABLE

ROUTES PRODUCTS — BUILT STRONGER TO LAST LONGER!
COMMER CARS LTD LUTON BEDS. EXPORT DIVISION: ROUTES LTD. DEVONSHIRE HOUSE PICCADILLY LONDON W.1

SPRAYED 'LIMPET' ASBESTOS

**GT. BRITAIN
GERMANY
SWITZERLAND
ITALY
EGYPT
ARGENTINE
INDIA
PAKISTAN
S. AFRICA
RHODESIA
BRAZIL
N. S. WALES
W. AUSTRALIA
QUEENSLAND
VICTORIA
EIRE**

- ★ High thermal efficiency
- ★ Reduction in sound level
- ★ Elimination of drumming
- ★ Prevention of condensation and corrosion
- ★ Fire protection

Sprayed "Limpet" Asbestos has received wide-spread acceptance on the world's Railways as the all-purpose insulation for Rolling Stock of all types.



J. W. ROBERTS LTD • CHORLEY NEW ROAD • HORWICH • BOLTON

A MEMBER OF THE TURNER & NEWALL ORGANISATION



Published Every Friday

RUSSELL COURT, 3-16 WOBURN PLACE,
LONDON, W.C.1

Telephone Number: TEMple 0303 (3 lines)

Telegaphic Address: Transpenco, Westover, London

ANNUAL SUBSCRIPTIONS

BRITISH ISLES, 35/-; CANADA, 32/6;

ELSEWHERE ABROAD, 35/-

payable in advance and postage free

The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements. In controversial subjects relating to all aspects of transport and traffic this newspaper offers a platform for independent comment and debate, its object being to encourage the provision of all forms of transport in the best interests of the community.

Replacing the Big Ships

THAT the problem of the replacement of the two ageing Queen liners has been the subject of serious and rather melancholy consideration by the board of the Cunard Steam-Ship Company is evident from the recently published annual statement to stockholders by its chairman, Colonel D. H. Bates. On the one hand there is cause for great pride in that the *Queen Mary* and *Queen Elizabeth* have been able to maintain a weekly transatlantic service with unique punctuality and reliability since their release from war service, upholding "British prestige in the Atlantic passenger trade against all comers without any charge on the nation's economy and not without success to stockholders." Such indeed is a proud record of service, reflecting the highest credit alike on builder and operator and on those who maintain and serve in these great ships. Cause for melancholy is in the fact that during the "years of plenty," from 1947 to 1956, high taxation and depreciation allowances based on original cost were unrealistic in the light of continuously rising costs of new building. The recently accorded extra relief under investment allowance had come too late to redress the situation, for, said Colonel Bates, in 1957 the prosperous era ended abruptly. Although the company has been able to save the original cost of the Queens—about £10 million—out of earnings, the conditions described have made it impossible to accumulate the £50 million needed for their replacement.

Unequal Competition

WITH so wide a gap to be bridged and faced by the increasing practice of governmental subsidies to competitors, it is clear that the company's problem would not be solved by a loan, from whatever source. If Britain is to retain the unique attraction of this particular shop window it appears that Cunard must be given the means to compete on level terms in the form of a grant from the national exchequer. If the means are forthcoming as a result of approaches shortly to be made to the Government, the company is clear on the type of vessel needed to maintain our traditional position on the North Atlantic run (and who could know better?) and the keel of the first replacement could be laid at John Brown's Clydebank yard in 12 to 18 months' time, with entry into service in about six years. Cunard plans envisage ships considerably smaller than the Queens (between 50,000 and 60,000 tons compared with over 80,000) providing a similar service speed of 28½ knots and similar accommodation for about 2,000 passengers. There would be considerable improvement in the standards of comfort and amenity for tourist-class passengers, which section is considered to offer the greatest opportunity for successful competition with transatlantic air travel. The planned lesser size and weight for equal duty would be the result of making use of the increased knowledge of light alloys and modern constructional methods and the more efficient propulsion machinery now available.

Nuclear Propulsion Suggested

SUGGESTIONS have already been made that nuclear propulsion should be considered for these projected new ships, although the Cunard company does not appear to be thinking along these lines. Rightly we think, since, prestige considerations apart, the principal apparent advantage of nuclear machinery in the immediate future (and it has first to be brought to the stage of practicability) is its great range and low demand on bunker capacity. This should not be a critical factor in the design of ships for use exclusively on the express Atlantic run,

for they spend almost half of every week in port on the normal business of turnaround, when bunkering presents no problems. If and when nuclear power for ship propulsion is shown to provide operating costs low enough to offset its higher first cost and show an economic margin over conventional machinery, then will be the time to consider it for this highly competitive route, if only technical grounds are involved. Meanwhile, if specific weight and bulk are likely to be prime factors in achieving the desired accommodation and speed in the smaller ships envisaged, the suitability of gas turbines, in which British technology is well advanced, calls for some attention. Naturally, the value of prestige and the commercial advantage of operating something new, which have been so marked in airline services recently, are much more difficult to calculate; an assessment of these factors might point to the desirability of accepting the risks involved and shaping a Government subsidy to cover the use of atomic power.

Could Be Available In Time

CONTRARY to earlier authoritative estimates of the time required to develop practicable small reactors suitable for transport applications, it now seems clear that not one but several types of nuclear power unit of the size and power required could be ready in time to equip the new Cunards, though it would seem more logical to apply these first in vessels where long range would confer great commercial advantage and where the early operational troubles possible with new equipment would not be so disastrous. However that might be, the imminence of the active development of atomic power for merchant shipping is evident from announcements made last week of a technical conference organised by the Civil Lords Committee (the "Galbraith Committee") of the Admiralty. The conference heard described the merits of eight different systems, seven by different groups of British companies and one by the Atomic Energy Authority. The A.E.A. design centred round a high-temperature gas-cooled reactor similar to that now being built at Winfrith Heath and gas-cooled systems were also proposed by the General Electric Co., Limited, and the de Havilland Engine Co., Limited. Two groups, Mitchell Engineering, Limited, and A.E.I.—John Thomson Nuclear Energy Co., Limited—favoured the rather simpler boiling-water reactor based on American developments, while a similar system using pressurised water was proposed by Babcock and Wilcox, Limited. The Hawker Siddeley Nuclear Power Company advocated the use of an organic liquid as the heat-exchange medium and the Rolls-Royce reactor under development for a system proposed by Vickers Nuclear Engineering, Limited, would use heavy water instead of a graphite moderator and extract heat by circulating steam. These proposals are now to be examined by a technical working committee set up for the purpose "with a full sense of urgency," the Admiralty promises, and an assessment made of their potential commercial value, while the Galbraith Committee will study the question of financing an atom-powered ship.

Finance and Enterprise

FINANCE perhaps is unlikely to be as big an obstacle as was at one time thought, judging by one of the estimates given to the conference, which put the cost of a 32,000-kW power unit at about £750,000. One of these reactors with fuel for two years would weigh less than a conventional boiler system and one week's fuel; it would give a steam output to produce 25,000 h.p. at the turbines, adequate to power merchant ships of up to 65,000 tons dead weight. Most of the estimates of overall operating costs indicated that these would be as low as or lower than with conventional machinery and the contention that these would reduce development and a widening application appears justified. All of the systems proposed are based on the use of an enriched fuel, but this should not present any difficulty; by the time any of them is likely to be in service Britain will have an adequate supply of plutonium while the recently concluded agreement for exchange of British plutonium for American enriched uranium should be working satisfactorily. Not all of the projected designs are equally advanced but the claim made for one is that it could be ready for service in 30 months, although certain parts for the first reactor of this particular type would have to come from the United States. Whatever the outcome of the conference as far as mercantile shipping is concerned, it has made clear the remarkable extent to which private companies and groups have been able to follow their own lines of development. Such healthy diversity of effort in this vital new technology should ensure that British industry is exceptionally well placed to achieve commercial success in building and equipping the mercantile fleets of tomorrow and meeting the high potential world demand for land-based power stations of a smaller capacity than those now operating and under construction in Britain.

[Forthcoming Events appear on page 6]

CONTEMPORARY PROBLEMS IN BUS OPERATION

The Search for Economy

By A. J. WHITE, M.Inst.T., General Manager, Maidstone and District Motor Services, Limited*

THE margin of profit on the remunerative town and interurban services (already heavily burdened with ever-increasing costs of operation) is being inexorably diminished by a progressive reduction in miles per hour operated and so, in consequence, is the ability to subsidise rural and unremunerative services generally. Since 1946, the increase in licensed vehicles occupying the roads of this country has been at the compound rate of 8.2 per cent each year and if it continues, the present number of 7 million licensed vehicles will rise to 14 million by 1966. Statistics show that there is one vehicle for every 7.6 inhabitants at present, and continued development at the existing rate would mean one for every 3.8 inhabitants in seven years' time.

It seems to me that as the railway lost much of its traffic to the bus because it gave a service more closely related to the home and ultimate destination, so the bus is giving ground to the private car because in turn the possessor believes somewhat mistakenly as far as town travel is concerned that he is free to travel to and from any point without the personal restriction of a timetable.

The last Commercial Show demonstrated that the industry had the necessary types of vehicles to fill most traffic demands, but these, the working tools of our industry, are very expensive, and are operated with very heavy labour costs, therefore it is essential that they be used efficiently. This deployment of rolling stock is exercising the mind of management today.

The Right Type of Vehicle

Should the analysis of vehicle loadings and usage give an indication that double-deckers can only be justified for very short lifts, then the further questions that follow are (a) What type of vehicle operation can be substituted—standee single-decks or one-man buses? (b) If the only answer is found to be that double-deckers are necessary for serving the peak demand, what use can be made of this kind of vehicle during off-peak periods?

It has been established by operators in this country that heavy peaks are not a deterrent to the use of one-man buses. The problem of fare collection at termini if layovers are short has been overcome by queue collection of fares by stand conductors. On the other hand, if running through densely populated towns where local service frequencies are higher, then the introduction of limited stops and minimum fares will successfully provide time for fare collection and a quicker journey for such passengers who are prepared to pay for a fast trip.

Front-Entrance Double-Deckers

With the advent of the front-entrance double-deck with power-operated doors and platform under the control of the driver, once 7 p.m. is past and television is in control, and perhaps in other off-peak periods, there is no reason as far as I can see why the top deck should not be sealed off and the vehicle controlled by a driver-conductor. I suggest that this is preferable to a reduction in frequency of service, as experience shows that beyond certain limits passenger carrying falls in a direct ratio to mileage operated.

A very important comparative statistical figure is "miles per licensed vehicle per week" and the variation in this figure, undertaken by undertaking by depot within operators' fleets, throws into perspective the relative efficiency of vehicle user. These mileage figures can vary from under 500 miles per vehicle to over 1,000 per week. By the use of straight-line graphs any wasteful use can be easily seen, but so often, especially in large towns and in industrial districts, the limited use of large-capacity vehicles necessitated by heavy peak traffic has had to be accepted with reluctance. Further, in provincial companies, this position is often aggravated by the necessity to provide special vehicles in the form of coaches for use on express services on Saturdays and Sundays only.

A Standee Vehicle

In the latter circumstances, by the close study of loadings, the development of a multi-purpose type single-deck is worthy of consideration. The type of vehicle I envisage on existing dimensions would be a front-entrance standee type with semi-coach trimmings, seating 38 passengers with 23 standing and capable of lifting short-journey peak traffic, yet comfortable enough to operate as a relief on express carriage work. Furthermore, it would be so designed as to enable use for one-man operation. Take for example a depot running 10 double-deckers each carrying 56 seated passengers and eight standing from Monday to Friday and having to provide five coaches for relief car operation at weekends. The double-deck capacity would be 640 passengers per day which could be lifted by 11 standee vehicles carrying 61 passengers per vehicle, i.e. a total of 671 passengers, thus there would be an immediate saving of four coaches. Such a standee vehicle might well prove particularly suitable for coach-air traffic if the standing room could be adapted for the carriage of the large amounts of luggage encountered in this type of work.

The advent of the 30-ft. front-entrance large-capacity double-deck is a momentous one and with its 73-78 seats will make a substantial contribution to breaking the back of morning and evening peaks. It will also help to provide the additional accom-

modation to meet the ever-increasing commitment of carrying schoolchildren.

It is considered that although the initial cost of this new type vehicle is greater than that of the present 56-60 seater type double-deck, the reduction in the number of buses in fleet in populated areas will help to reduce not only depreciation charges, but other basic items of expenditure. The more efficiently vehicles are used the smaller fleets will become, with obvious savings and reductions in capital costs, depreciation, licensing and maintenance. The criterion must be not how large a fleet but how efficient.

E.D.P.

The time has come when the bus operator must employ operational research. By this I mean not merely statistics portraying what has been done but the application of scientific methods of study

to the whole field of vehicle operation in order to provide management with a quantitative basis for making decisions. In this connection I believe it is necessary to look to the relatively new techniques of electronic data processing now in use on advanced lines, although still experimentally, by certain American passenger transport undertakings whose problems are analogous to ours, i.e. recession in passenger carrying, particularly during off-peak times and weekends, and appalling

congestion caused by private cars.

As I see it the difficulty in the general adoption of electronic data processing, quite apart from the high initial cost or the heavy rental, lies in the collection of the necessary information for feeding into the machine. I think it can be accepted that by established electronic processing techniques, car workings and duty schedules can be compiled quickly and more precisely than by today's hand-produced detail, but on the other hand it is not a practical proposition at this stage to pursue electronic data processing if the keeping of the compiler fed with raw data is such a herculean and expensive task as to nullify the hoped for economies.

In my opinion detailed analysis of the pattern of passenger loadings and the electronic determination of traffic requirements will only become practicable with the development of some form of ticket issuing machine capable of automatically recording the requisite traffic detail on an audit tape, such detail being in a form that can be easily converted or automatically fed into an electronic computer.

Enthusiastic as one may be for E.D.P., it would appear that if it were decided to adopt such equipment forthwith, it would take at least two years to install and prepare detailed procedures and machine programmes. Although suffering from teething troubles, the apparatus developed by the West Yorkshire Road Car Company, known as the Loadmeter or some similar device, will, I believe, be generally adopted by operators and will replace the cumbersome and expensive method of a physical count.

Standard Fleets Rare

Apart from evolution in design, unfortunately there are not many undertakings wherein a standard fleet is possible. This is not surprising since provincial bus operation demands an assortment of vehicles, comprising normal height and low-height types of double-deck, varying sizes of single-deck with widely ranging seating capacities and, at present, coaches for express services, excursions and tours and private-hire work, all of which tends to increase the number of spare vehicles needed to cover the separate types under repair.

Much has been done in the field of standardisation by the manufacturers particularly in relation to the design and interchangeability of component parts. The bus operator appreciates the difficulties that face chassis manufacturers in the rationalisation of production so that units may be adaptable in their various types of chassis. He appreciates, too, how the cost of chassis has been kept down by such rationalisation. On the other hand, undertakings who have had the experience of operating chassis designed purely for bus work appreciate the benefits of closely related life of units. Today we see that operators with certain exceptions have forsaken "the general overhaul," i.e. complete strip and replacement, for "unit replacement," based on what is considered to be the expectancy of life of the individual units.

I consider that with today's well-designed and well-produced rolling stock we could establish a method of inspection of units and parts at set mileages to determine by experience, instrument, or record, whether a vehicle is capable of running without trouble until the next predetermined inspection.

Bodywork Appearance

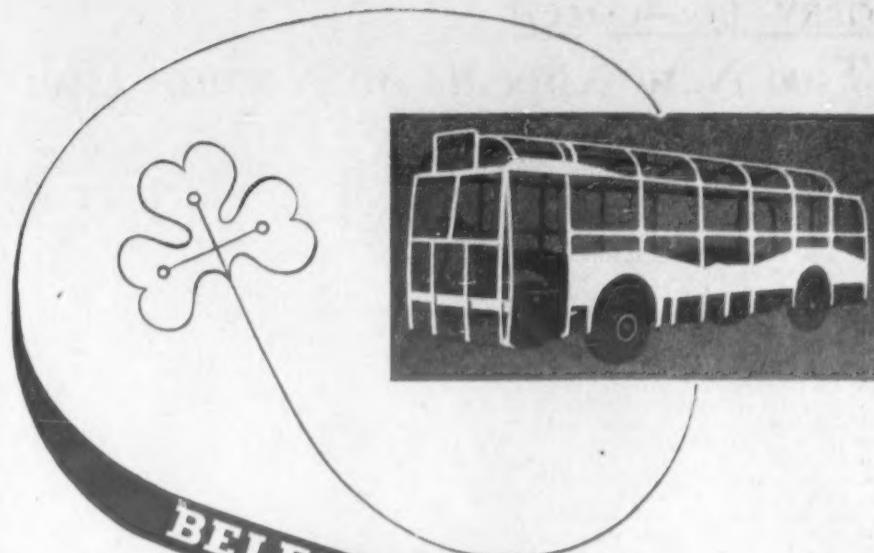
The maintenance engineer looks forward to body designers playing their part in contributing to reduce maintenance costs. Fibreglass and plastics can be used to a far greater extent. Mechanical washing machines have come to stay, and therefore a study of the body lines should be made to eliminate the protruding parts which tear away the machine brushes.

A maintenance item which is costly, both in time and labour, is vehicle painting. A thought that must necessarily follow relates to outside stressed skin. Although not generally acceptable to operators just now—mainly because of pride in livery, and the possibility of having to accept a lower standard of exterior condition and therefore of appearance—the lower maintenance cost of the outside stressed skin, with its relative resistance to indentation, may have to be reconsidered.

* Abstract of a paper presented to the conference of the Public Transport Association at Folkestone on May 18.



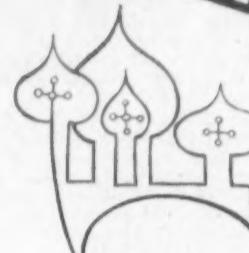
Mr. A. J. White



BELFAST TO BOMBAY

MET SEC LIGHTWEIGHT ALL-METAL FRAMINGS

From Belfast to Bombay, in fact, to all corners of the world, flow the Lightweight All-metal Framings manufactured by Metal Sections, Ltd. Designed to individual requirements, they are supplied fully fabricated, and ready for speedy assembly and finishing.

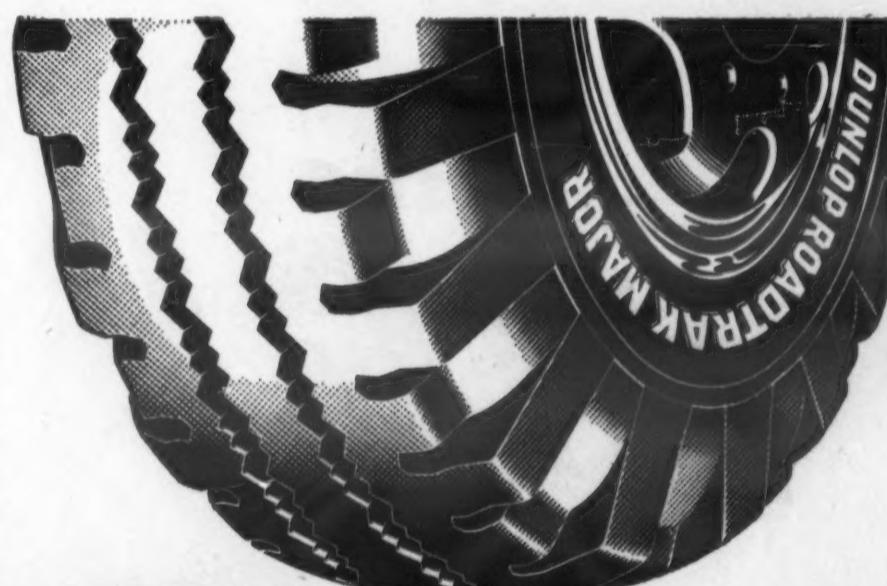


Metal Sections Ltd

OLDBURY • BIRMINGHAM

Telephone: BROadwell 1541

SM/MS 3067



Giant economy from Dunlop durability

Keep down running costs by choosing your giant tyres from the Dunlop range. There are tyres to meet every type of service condition — each one individually built to give you mileage, safety and dependability.



DUNLOP ROADTRAC MAJOR

The best tyre for on and off the road. Deep, self-cleaning shoulder bars for positive grip on loose, earthy ground, combined with deep ribbed centre tread for long mileage on normal road services.

DUNLOP

BUILT BETTER TO LAST LONGER!

LORRY—BUS—COACH**Two New Appeals on Normal User**

IN Eastbourne this week, Mr. R. Morton Mitchell, chief executive officer of the R.H.A., said that the dangers anticipated from applying the principles of the Hesketh and Knight cases (concerning normal user) had not always materialised. In two cases heard in the Yorkshire traffic area the licensing authority had granted licences despite departures from the declaration of normal user contained in the original applications for A-licences. The B.T.C. had appealed, and the R.H.A. was hoping that as a result of these two appeals the Transport Tribunal would "indicate in clearer terms what they themselves and the High Court had in mind in regard to the exercise of a licensing authority's discretion in face of justifiable departures from normal user."

Mr. Morton Mitchell commented that it was apparent from the quarterly B.T.C. statistics that both the tonnage of railway traffic and the revenue from such traffic were steadily decreasing. This did not help to inspire confidence in the claim made that within a few years the revenue of the railways would meet their costs, and perhaps pay interest on their loans. It might be that "in a comparatively short time the railway bubble would really burst," the government of the day would have to make a realistic assessment of the transport needs and the transport facilities of this country.

Latest C-Licence Statistics

BY the end of March this year the total number of vehicles authorised under C-licences had risen to 1,108,532, compared with 1,075,526 a year earlier and 1,028,552 at the corresponding date in 1957.

Buses Will Usher In Reduced Fares

No fewer than 1,139 fare reductions will come into force in Hastings and Bexhill on June 1 when the Maidstone and District trolleybuses give place to double-deck buses carrying 73 or 75 passengers. The reductions will vary from one half-penny to twopence.

Cost of Bus Apartheid

IMPLEMENTATION of the first phase of apartheid in Durban has resulted in a loss to that city of an estimated £1,169 on only four bus routes during the first month. As at least 18 more routes have to be converted by January 1, 1960, it is officially estimated that the cost of introducing total segregation on Durban municipal transport services will be at least £157,538 a year.

Valuation of Bus Garages

LOCAL anomalies over the rating of municipal bus depots at Plymouth, Grimsby and Wigan have been overcome. The problem arose whether they should be assessed on net annual value or gross annual value, and it was brought to light when Plymouth Corporation pointed out that its depot was on a net valuation, while that of the Western National Omnibus Co., Limited, was on gross value, and so secured a concession under the Rating Act, 1957. The matter was raised with the

Inland Revenue by the Association of Municipal Corporations, which pointed out that many depots (i.e. garages, not bus stations) were on a gross valuation, and as a result, the valuations for Grimsby and Wigan will be put on a gross basis, and Plymouth Corporation will follow suit.

Harsher Enforcement Urged

LEGISLATION to amend the Road Traffic Acts was suggested in the House of Commons by Mr. Ernest Davies in order to ensure that persons convicted on a second offence under section 19 of the 1930 Act in regard to drivers' working hours,

the equity capital. Mr. A. Holmes, managing director of Cawood Wharton, is chairman of the company, and the other directors are Messrs. E. Binks (representing Cawood Wharton) and J. Ewing and T. S. Naylor (representing the B.D.A.). Bulk Liquid Transport, Limited (then one of the Peter Slater group of companies), was fined £20,000 in March on charges relating to drivers' hours and records. Cawood Wharton is best known as an industrial fuel supplier.

Double White Line Rules

STATUTORY force was given to the new system of road markings known as "the double white line" on Tuesday this week. Ministry of Transport advice to drivers is:

(1) Where the line nearer to you is continuous, keep to the left of it. You must not cross or straddle it, except to reach premises or a side road, or to pass a vehicle which has stopped for reasons laid down in the regulations.

(2) Where the line nearer to you is broken you may cross it and the continuous line alongside it, but this does not mean



Bedford with Yates Europa coach body operated by Richardson Brothers, West Hartlepool; right, a Grey-Green coach with Harrington Crusader body on the same chassis

or under section 16 of the 1933 Act in regard to the keeping of records, should have their carriers' licences suspended and on a subsequent conviction revoked. However, Mr. G. R. H. Nugent, the Joint Parliamentary Secretary, M.O.T., said that the revocation of carriers' licences was best dealt with under the statutory discretion exercised by licensing authorities, who could thus take into account the varying circumstances of individual cases.

I.R.U. Meetings in London

IN order to reinforce the role of Great Britain in European road transport, essential if it is to take an effective part in international developments, the R.H.A. has recently extended an invitation to the International Road Transport Union to hold its next meetings in London in September. It is hoped that this gesture will make easier the process of encouraging movement of road transport vehicles from one country to another, and particularly between the United Kingdom and other European countries.

Bulk Liquid Transport Sold

OWNERSHIP of Bulk Liquid Transport Limited, the Gildersome (near Leeds) haulage business, has passed into the hands of the Bradford Dyers Association and Cawood Wharton and Co., Limited, each holding 50 per cent of

that it is safe to overtake; it is still necessary to take special care.

(3) Where there are double white lines you must not park any vehicle except a pedal cycle.

Failure to observe the new rules would render the offender liable on conviction for a first offence to a fine of up to £20.

The ban on parking does not prevent a bus or other vehicle stopping to pick up or set down passengers, or a goods vehicle stopping to load or unload. In such cases the driver of a following vehicle is permitted to cross the unbroken line if it is necessary in order to pass, though he should first satisfy himself that it is safe to do so. Bus stops may be resisted if they are within the limits of the white line system, unless they are in bays provided for that purpose in the road.

Lighting Regulations to be Consolidated

CONSOLIDATED Road Vehicles Lighting Regulations have been circulated in draft form by the Minister of Transport to interested organisations for comment. The principal amendments delete certain transitional provisions no longer required. Vehicles propelling snowploughs in front will be exempt from the requirements as to the minimum height from the ground of front lamps.

Oil Terminal Enlarged

AFTER less than a year's operation at its Poplar fuel oil terminal, Charrington, Gardner, Locket and Co., Limited, is doubling its capacity. The terminal, which was described at its opening

last September as the largest of its kind in Great Britain, has at present storage for 4,180,000 gallons of fuel oil. The new tanks, now being erected at a cost of £120,000, will provide for an additional 4,590,000 gallons.

Ribble Opposes No-Smoking Rule

REPRESENTATIONS by the boroughs of Crosby, Bootle and Chorley, Litherland U.D.C., and Altcar Parish Council to the North Western area Traffic Commissioners that smoking should no longer be permitted in the lower saloons of Ribble double-deck buses are to be opposed by the company on the ground that it "is no part of the company's business to decide for its passengers what is good or bad for them."

Responsibility Lies with Government

IN his speech to the annual general meeting of the Public Transport Association, Mr. T. Robert Williams regretted the archaic regulations, nearly 30 years old, under which public service vehicles are operated. He said the association was shocked by the failure of the Chancellor to introduce any proposal in his Budget that could afford significant relief to the bus industry in today's circumstances. The association welcomed the reduction in excise duty licence fees but greatly deplored the fact that the Chancellor's accompanying remarks were bound to leave the impression with the travelling public that the reduction would provide a general solution to the problem of uneconomic rural services, which, in fact, it left virtually untouched. No attempt whatsoever was made to relieve the industry of the immensely greater burden of the diesel fuel tax. Operators were deeply resentful at being held responsible by the public for service reductions when in fact, responsibility for that rested squarely on the Government.

Bus and Coach Developments

Walter Higgins, Ladywood, Birmingham, applies for the ex-cars and tours of S. Small from Winslow Green.

J. and F. Hornsby, Scunthorpe, applies for licences held by the executors of W. K. Harsley, Scotter.

J. S. Moncrieff, North Scousburgh, Shetland, wishes to withdraw his Hillwell—Scalloway service.

J. Meffan, Kirriemuir, applies to withdraw his service thence to Alyth.

Application by Snowdonia Coaches (Lloyd and Barratt) to extend its Cirencester—Bibury service to Quenington has been refused.

Hants and Dorset Motor Services, Limited, is proposing revision of a number of its services east and south from Bournemouth in the Burley and Ringwood areas of the New Forest.

Plans of London Transport to extend its country bus service 354 into the Marshalswick Estate at St. Albans in June have been deferred until the city council can improve Marshalswick Lane. This is unlikely before the end of the year.

J. Carmichael, Glenboig, seeks a daily service between Coatbridge (Albert Street) and Moodiesburn (Glenmanor Avenue) via Marnoch, Avenuehead Road, Glenmanor Avenue and Bridgeburn Drive.

Birmingham and Midland Motor Omnibus Co., Limited, and Walsall Corporation propose joint services between Walsall and Sutton Coldfield via Barr Beacon and Streetly Station or New Oscott. These plans would replace previous proposals for these routes.

The following London Transport Central area bus route alterations were announced with effect from May 13-17: Sunday route 57a, South Croydon Garage—Victoria, is extended via Marble Arch, Baker Street, the Zoo and Camden Town to Hampstead Heath; 71, Hammersmith—Coton, extended on Saturday via 216 to Sunbury Station; 77a, King's Cross—Raynes Park, diverted on Sunday via Westminster Bridge and renumbered 77c; 112 diverted on summer Sundays from Kew Green to London Airport (Central) via Great West Road; 208a, Clapton Pond—Stratford, diverted in Homerton and Hackney Wick via Ponsford Street, Morning Lane, Wick Road and Chapman Road (avoiding low railway bridges), renumbered 178 and operated with low-height double deckers.

You take the HIGHROAD

There is no other tyre made

that can give you a

greater return in mileage

and performance

AVON

THE THRIFTY-EST HIGH QUALITY TYRE EVER PRODUCED

LATEST TREAD COMPOUND

You take the 'HIGHROAD' and get up to 10% more tread rubber than in previous standard AVON giants compounded by advanced high-quality techniques.

UNBROKEN RIBS

You take the 'HIGHROAD' and get even—and therefore economical—wear across the whole width of the tread. Recessing gives cool running in the shoulder region.

ANTI-SKID NOTCHES

You take the 'HIGHROAD' and you experience new safety. Multi-directional notches in all tread ribs give powerful resistance to skidding at all loads on all road surfaces.

DOUBLE REINFORCED BUTTRESSES

You take the 'HIGHROAD' and get great strength throughout the shoulder region with protection from tread chipping caused by kerbing or backing on to ramps, ensuring maximum tread life.

ANTI-STONE-TRAPPING GROOVES

You take the 'HIGHROAD' and see how its narrow grooves of special design will not pick-up or carry destructive stones. The groove bases are also shaped to resist tread cracking.



UNIQUE AUSTRALIAN TRANSPORT UNIT

Giant Trailer for Road or Rail Use

ONE of the biggest overland haulage contracts ever attempted in Australia is now under way. It is the movement of 1,000 tons of machinery more than 1,700 miles by means of a unique heavy-duty low-bed trailer designed for travel on roads or rail tracks. The machinery comprises power station and ore-treatment units, some weighing more than 60 tons, consigned from the United Kingdom by the General Electric Co., Limited, through Adelaide, in South Australia, to

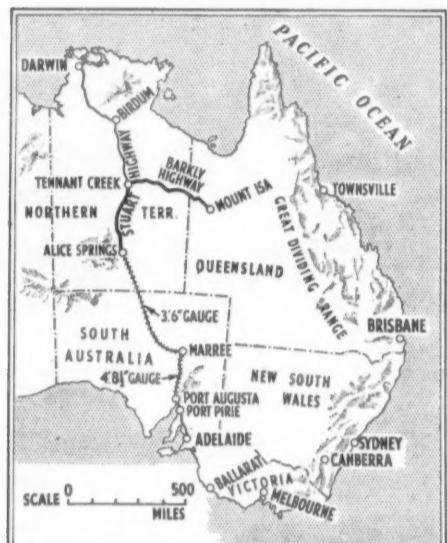
capital of the Northern Territory, was almost as close and linked by first-class roads, but its wharves and cargo-handling equipment were inadequate. Adequate port facilities existed at Adelaide and both existing road and rail services could carry the required loads over the 1,700 miles to Mount Isa. However, lifting gear strong enough to transfer the loads from a road vehicle to a railway truck did not exist; 20 tons was the heaviest that could be lifted. As this route alone was capable of carrying the



The loaded trailer mounted on 3 ft. 6 in. gauge rail bogies at Alice Springs

the mining centre of Mount Isa in the north-east, operated by Mount Isa Mines, Limited.

Much of the route lies through semi-desert or hot sparsely populated cattle country; each round



Map of the 1,700-mile route showing road and rail sections

trip by the vehicle will take weeks to complete and completion of the whole contract is expected to take 18 months. The first lift involving a stator weighing 62 tons, part of a turbo-alternator power-generating plant that will be the biggest outdoor

very heavy loads of equipment envisaged it was clear that a new type of heavy-duty vehicle was required. The haulage contractor, R. H. O'Regan, Pty., Limited, Sydney, the trailer manufacturing firm of Freight Industries (N.S.W.) Pty., Limited, the General Electric Company of England and engineers of the Commonwealth Railways joined forces to design and construct a vehicle that would carry up to 85 tons on existing road and rail tracks and obviate the necessity for transhipment at road and rail terminals.

The design of the resulting 77-ft. long trailer was based on a conventional double-goosenecked well-deck transporter modified to enable the road bogies to be interchangeable with two types of rail bogie, one for standard gauge and one for 3 ft. 6 in. gauge. The two road bogies each comprise 32 wheels mounted in pairs and fitted with 8.25-15 pneumatic tyres. Both bogies are equipped with hydraulic power steering and all wheels are fitted with drum brakes. A separate air-cooled diesel set provides the hydraulic power. The total cost of the trailer was £20,000.

Journey Details

The first heavy piece to be moved, the 62-ton stator, was loaded directly on to the trailer in road trim at Adelaide from the cargo ship *Otaki* and travelled the first 200 miles of the journey to Port Augusta on good road. The road northwards from there to Alice Springs, 870 miles distant, is unsealed and often just a track so the trailer, complete with load, had its road bogies exchanged for 4 ft. 8½ in. rail bogies for the 230-mile rail journey to Maree. There the rail gauge changes to 3 ft. 6 in. and the second set of rail bogies was fitted for the 540-mile stage to the railhead at Alice Springs, where the vehicle once more became a road trailer. Each bogie change necessitates raising each end of the trailer in turn by means of hydraulic jacks and full conversion from road to rail trim or vice versa takes about five hours.

The final 700 miles or so from Alice Springs to Mount Isa was over roads as good as any in



The Australian-built trailer in road trim undergoing road tests

unit of its type in the world, has already been satisfactorily completed.

The equipment is needed for extensions to ore-treatment plant and a 30,000-kW electrical generating plant which are being constructed as part of a £25 million development project to exploit the extensive deposits of silver-lead-zinc ores, sulphides and copper sulphides of the Mount Isa field in northern Queensland. Mount Isa is already producing more than half the copper and a big percentage of the silver, lead and zinc mined in Australia; its expansion has been handicapped by its remoteness and by the restricted capacity of the light 603-mile railway linking it with Townsville, Queensland's Pacific Ocean port. Nearby is the new uranium township of Mary Kathleen, where uranium was discovered in 1954 and which is now a major supplier of uranium oxide for Britain's atomic power stations.

New Era in Transport

Overland transport to these areas was, until this year, limited to lifts of about 25 tons. The development of the new trailer, therefore, opens up a new era in the development of Australia's difficult northern areas. Factory-tested machinery in single loads of up to 85 tons can be brought in complete and ready for immediate installation. Two years of investigation and research were required to solve the problem of delivering machinery in complete units to Mount Isa. Routes from the nearest large ports, Townsville and Brisbane, were impractical because both the connecting roads and the railways were unable to carry the big loads. Darwin, the

Australia—the Stuart Highway as far as Tennant Creek and then on the Barkly Highway for the remainder of the journey. With pushing and towing tractors, the loaded unit averaged 135 miles a day over the final road section and completed the entire journey in 18 days.

NEW MOBIL FILMS

Two Added to Industrial Series

TWO new films, *Lubricants with Care* and *Compressor Lubrication*, now available from the industrial division offices of Mobil Oil Co., Limited, are the sixth and seventh to appear in a series of industrial films being made by the European group of Mobil Associates (United Kingdom, France, Germany and Italy). Both films were made abroad, *Lubricants With Care* by Mobil Oil France and *Compressor Lubrication* by Mobil Oil Italiana, and both have won awards in their respective countries. The English versions were completed by Technical and Scientific Films, Limited, and were recently given a first showing in London.

The French-made film deals with the manufacture, transport, storage, application and reclamation of high-grade lubricants, while *Compressor Lubrication* deals with the operating principles and lubrication of all types of compressors. Both films have been designed for all types of audience. The next two films to be included in the series will deal with textile machinery and gear lubrication.

To put it mildly . . .



. . . we are really delighted with these Claymores'

Driver comfort, easy access, excellent steering giving superb manoeuvrability, and remarkable road holding qualities . . . these are just a few of the Claymore's finer points with which, in their own words, the Hoffmann Manufacturing Co. Ltd., of Chelmsford, "are really delighted".

And Messrs. Hoffmann's views are shared by many other Claymore operators who have expressed their appreciation of this wonderfully reliable and economical truck.

Carrying a payload of 4-5 tons . . . fitted with a 70 h.p. horizontal diesel mounted amidships which allows maximum body space with minimum overall length and with a three-seater cab with low entrance step a few inches from the kerb, the Claymore will carry more goods per ton mile, in shorter time, through heavier traffic than any other weight for weight local delivery vehicle. And, like every Albion, it will do so for years longer than most.

The Albion
4-5 ton

CLAYMORE

The Ideal Delivery Vehicle

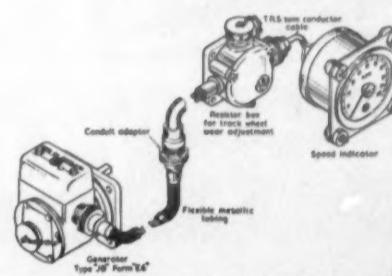
ALBION MOTORS LTD.
SCOTSTOUN, GLASGOW, W.4

Sales Division: Hanover House, Hanover Square, London, W.I. Tel: MAYfair 8561

Quicker by rail—and safer with

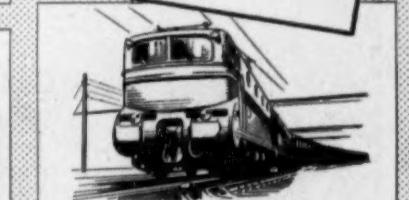
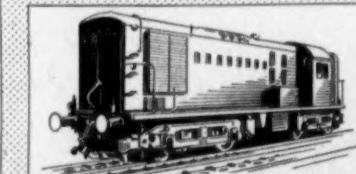
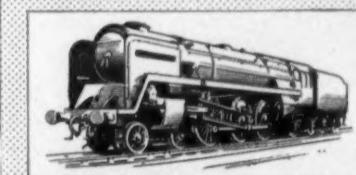
BTH SPEED INDICATORS

For correct and continuous indication of locomotive speed, essential for safety and precise schedules, many railways have come to depend on BTH equipment. Pioneers in the design and manufacture of Railway Electric Speed Indication Equipment, BTH have more than 20 years' experience on British and Overseas railways.



Leading Features

High accuracy, unaffected by changes of temperature
Clear indication of speed
Sensitive, instantaneous response to speed changes
Interchangeability of units
Reliability under all conditions, with minimum servicing requirements
Shock resistant, able to withstand vibration and rough usage.
For all types of locomotives and motor-coaches



BRITISH THOMSON-HOUSTON

THE BRITISH THOMSON-HOUSTON COMPANY LIMITED • RUGBY • ENGLAND
Member of the AEI group of companies

A490

ILLUMINATIONS AT SALTASH CENTENARY



Floodlighting of the Royal Albert Bridge, Saltash, and of the Cornwall Railway Company's tribute to its designer, to mark the centenary of its formal opening on May 2, 1859, took place from May 1 onwards. On May 6 an excursion was arranged with the British Railways tender "Sir John Hawkins" stationed at Plymouth to view the illuminations. This attracted 370 passengers and, in view of the encouraging result, it is probable that similar excursions will be operated in the last week in July and in August. The right-hand views show the special train for Western Region guests from Plymouth hauled by "Isambard Kingdom Brunel" and, below, the unveiling of plaque at Saltash Station by Alderman W. T. H. Stanlake, Mayor of Saltash, to commemorate the centenary of Brunel's masterpiece. Left to right are seen:

The Town Clerk of Saltash (Mr. A. Gordon Bellingham); Sir John Carew Pole, Bart., member of the Western Area Board, British Transport Commission, and chairman of the Cornwall County Council; the Mayor of Saltash; Mr. E. W. C. Grand, member, British Transport Commission; Mr. R. F. Hanks, chairman, Western Area Board, B.T.C.; the Lord Lieutenant of Cornwall (Lieut.-Col. Sir Edward H. W. Bolitho, K.B.E., C.B., D.S.O.); and behind are seen: the Deputy Mayor of Saltash (Councillor J. P. Bidgood, J.P.); the Lord Mayor of Plymouth (Ald. G. J. Wingett, J.P.) and Mr. J. R. Hammond, M.B.E., general manager, Western Region, British Railways.



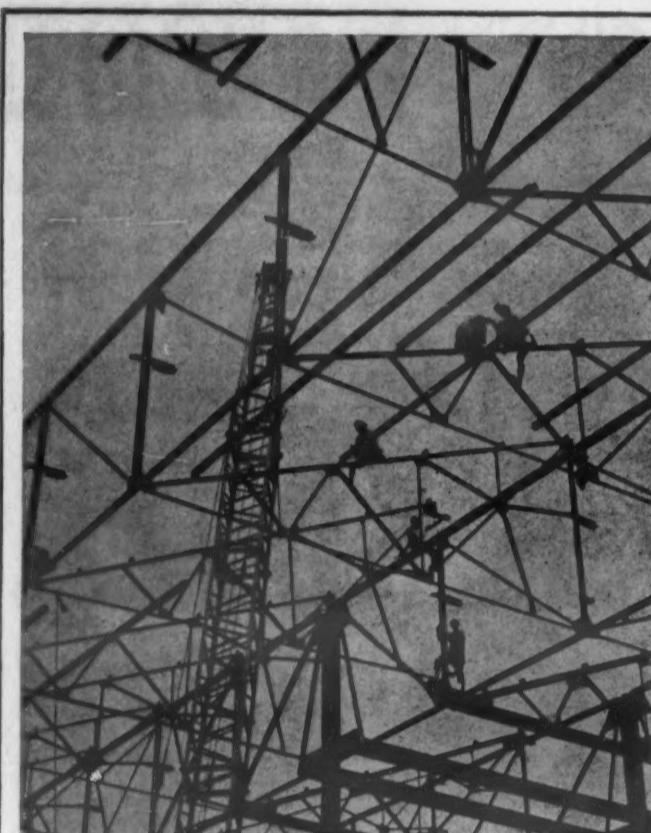
Forthcoming Events

- May 16.—Omnibus Society (Scottish). Visit to J. Laurie and Company, Hamilton. 8 p.m.
 May 16-18.—Light Railway Transport League. Annual Convention. At The Hague.
 May 20.—Road Haulage Association. Annual dinner. At Grosvenor House, W.1. 7 for 7.30 p.m.
 Institute of Transport (Humbershire). Annual general meeting. At Chamber of Commerce and Shipping. Samman House, Bowlly Lane, Hull. 7.30 p.m.
 Institute of Road Transport Engineers (Metropolitan). Visit to Whitbread and Co., Limited, E.C.1.
 Institute of Road Transport Engineers (East Midlands). Visit to Simms Motor Units, Limited.
 May 24-30.—International Union of Public Transport. Congress. In Paris.
 May 25.—Historical Model Railway Society. Photographic display by Mr. K. A. C. R. Nunn. At Caxton Hall, S.W.1. 7 p.m.
 May 26.—Omnibus Society. Paper by Mr. J. Rodway, "An American Holiday." At Victoria Coach Station, S.W.1. 6.45 p.m.
 June 16-25.—Institute of Transport. Congress. At Copenhagen.
 September 8-13.—Society of British Aircraft Constructors. Annual flying display and exhibition. At Farnborough. (Public days, September 11-13).
 September 21-25.—Municipal Passenger Transport Association. Annual conference. At Edinburgh.

CLASSIFIED ADVERTISEMENTS

CLASSIFIED ADVERTISEMENTS should be addressed to THE MANAGER, Classified Advertisements, MODERN TRANSPORT, Russell Court, 3-16 Woburn Place, London, W.C.1.
ACCEPTANCE.—Advertisements can be accepted up to 2.30 p.m. on Monday to ensure insertion in the current week's issue. MODERN TRANSPORT is on Sale every Friday.

PATENT
 THE Proprietors of British Patent No. 880,644, relating to "Improvements in Ballast Tamping Machines for Railway Tracks," are willing to grant licences for the commercial exploitation of the invention in the United Kingdom. Lloyd Wise, Bouly and Haig, 10 New Court, Lincoln's Inn, London, W.C.2.

LOCATION
Durgapur—India

In course of erection is shown the lattice girders and roof trusses to the Light and Heavy Machine Shops and Loco Repair Shops for the Central Engineering Maintenance Department of the Durgapur Steel Project.

These form part of one of the several buildings of which the steelwork has been designed, fabricated and erected by CLEVELAND.

Construction by **CLEVELAND**



THE CLEVELAND BRIDGE & ENGINEERING CO. LTD., DARLINGTON, ENGLAND.

Always fit **Cheney**

the clip
with the double
grip

It's the exclusive
Cheney design and
patented thrust washer
and insert that give the
Cheney Clip that extra,
never-relaxing grip. A larger
diameter screw ensures deeper,
more positive thread engagement
to withstand 25% extra
torque—and yet the Cheney Clip
costs no more than any other type.
Always fit a Cheney Clip and see
the difference.

CHENEY WORM DRIVE CLIP
from **FENTER**

Trade Enquiries to:
FENTER LTD., 184 ASTON ROAD, BIRMINGHAM 6

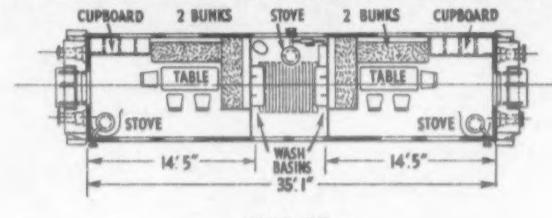
RAILWAY BREAKDOWN PRACTICES

Comparison of Equipment (Cont.)*

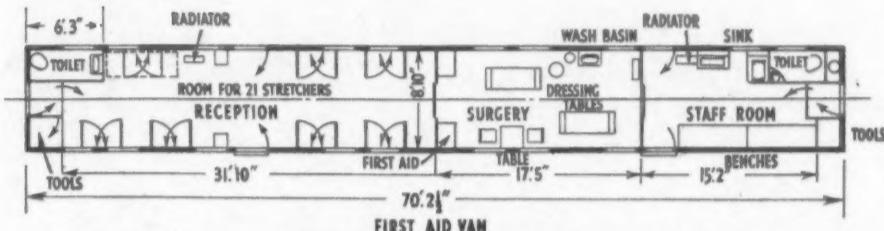
IMPORTANCE OF GOOD LIGHTING

WITH the development of electric traction with overhead catenary feed in Europe, it is of interest that only in very rare cases has it been considered necessary to design a special breakdown crane for working under catenaries. Railways in most countries, including those in France, Italy and the Netherlands, where

is a paraffin lamp with incandescent mantle. For general purposes there is the Model ALS of 2,000 m.r.c.p., but use is also made of searchlight and floodlight types of up to 5,000 m.r.c.p. and of hand types of 1,000 m.r.c.p. The Tilley lamp is simple, robust and reliable. Many steam cranes in Britain are fitted with steam-driven generators which pro-



RIDING VAN



Layout of West German Railways four-wheeled riding van for breakdown train crew and, below, first aid and ambulance coach

there is considerable electrification, feel that the catenary system can be readily dismantled and the orthodox type of crane then operated. In both Germany and Switzerland, however, special 25-ton capacity cranes have been designed for working under catenaries.

Propulsion of Cranes

Although on most railways breakdown cranes are self-propelled to promote mobility at the scene of an accident—two important exceptions are the Danish State Railways and the Japanese National Railways—they normally proceed to the scene of the accident as part of the breakdown train. For this purpose speed restrictions apply, varying from 25 m.p.h. in Italy, India and on some American railways to 50 m.p.h. in France, Switzerland and Norway. In South Africa, America, India and Japan, the crane is normally marshalled next to the locomotive, but in many European countries it is more usual to insist on at least one vehicle between it and the engine. The majority of railways have no fixed rule, however, the crane being marshalled to suit the exigencies of the job.

For lifting purposes, chains are mostly used for light or medium loads and wire slings with lifting beams for heavy loads such as locomotives. The lifting of electric and diesel locomotives gives rise

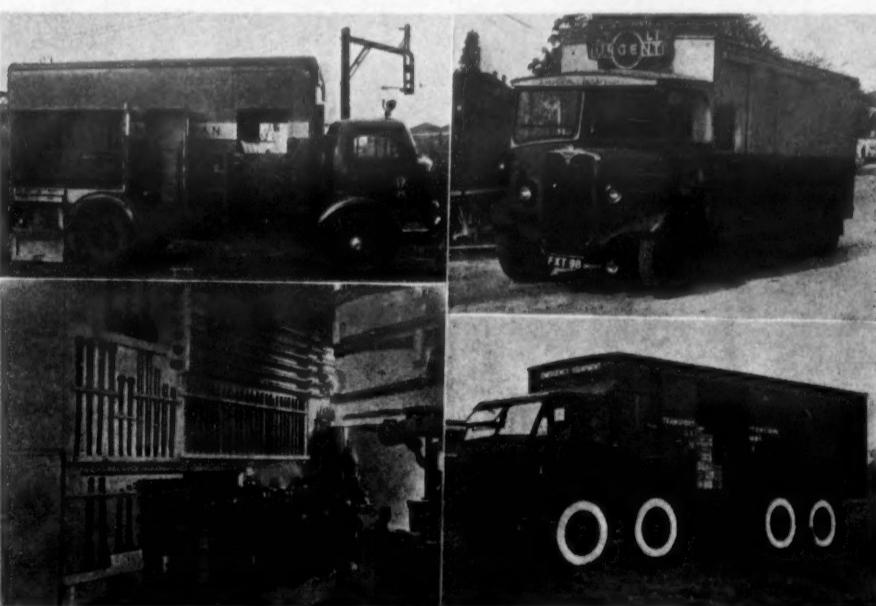
to disadvantages to this practice, however, in so far as such generators are very noisy and use large quantities of water which may not be readily available. Portable electric lighting units are not considered very satisfactory by British Railways owing to possible breakdown of the power unit and the need for long cables which may cause obstruction.

Many railways in other countries do, however, rely largely on electric lighting provided by a turbo-generator on the crane or a diesel generator. Amongst these are railways in North America, France, Germany, Italy, Norway, Sweden, and India. Tilley-type lamps are also used in Switzerland, Australia and New Zealand, whilst types of petrol-fuel lamps are found in Denmark and Holland. The Japanese National Railways prefers acetylene, whilst in South Africa, and to a limited extent in New Zealand, Alda flares are employed for general illumination. Reference should also be made here to the considerable help given at accidents by non-railway bodies. This is particularly so in Britain where local authorities, military services, fire services and ambulance services are always quickly on the scene.

In recent years there has been a growing appreciation of the importance of specially equipped road vehicles taking advance parties to the scene



Railing a London Transport tube car by railing slips, skid plates and pushing plates—equipment brought to the site by road vehicle



Commer breakdown van of Victorian Railways showing neat stowage of tools and packing timbers; London Transport A.E.C. emergency van; below, interior of L.T.E. heavy breakdown vehicle showing jacks and special tools, all of which have their specific place; and, right, a Foden emergency vehicle for the U.S. Army Transportation Corps which was provided with equipment identical with that of the London Underground railways heavy breakdown lorries

to weight distribution problems, and special lifting brackets fixed at specific places on the locomotives must be used.

Good Lighting Essential

A factor of great importance in breakdown work is the provision of efficient and adequate lighting. The British Railways favour the Tilley lamp which

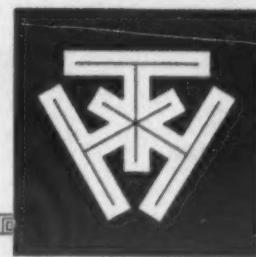
is a paraffin lamp with incandescent mantle. Little use is at present made of such vehicles in Britain except by London Transport where specially adapted road breakdown vans are in general use for accidents on the railway system. Such vehicles are widely used by other railways in Europe and elsewhere. In France, 19 depots are provided with motor lorries which carry light apparatus of all types, particularly for releasing trapped persons from wreckage.

(To be continued)

* The first portion appeared January 31.

TYER & CO. LTD.

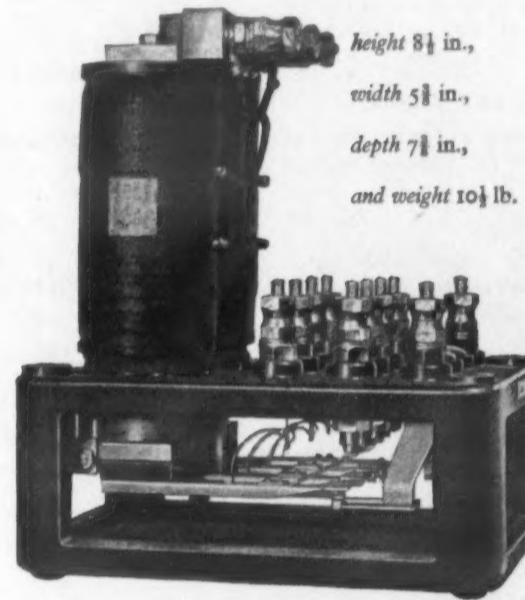
ESTABLISHED 1851



TRACTIVE ARMATURE DIRECT CURRENT BLOCK RELAY

TYER'S FOUR ARM TYPE G2/T

conforming, in all respects, to the British Standard's specification No. 1659 of 1950 with all material and workmanship of the highest quality



height 8½ in.

width 5½ in.

depth 7½ in.

and weight 10½ lb.

coil windings: 2·25 ohms or 9 ohms or to particular requirements

contacts: Usually 4 front and 2 back { front, 50% silver, 50% graphite
arm, fine silver
back, fine silver

casework: moulded two-piece unit with four rectangular glass sides.

terminals: O.B.A., nut type to B.S.S. 422. If required, can be supplied to A.R.A. standards. Shrouds for terminals catered for, also short terminal stems to suit detachable coupling unit.

The whole unit so cased as to ensure the contact chamber being proof against moisture.

terminal markings are moulded in relief: Coils R1 and R2. A. arm, F. front contact, B. back contact.

packing: cartons designed to contain the unit for supply and storing

Similar four arm relay-units are being produced as Line Type Relays, G2/L to B.S.S. 1659 of the 250 ohm and 1,000 ohm type. With four front and four back dependant contacts or, to suit particular requirements, the weight of this relay is 8½ lb. Tyer's "Block" relay units, of similar design, caters for all two, three or four arm contact requirements and its average weight is 9 lb.

another

TYER

product

Designed and built by specialists with the first name in signalling, at their Merrow Siding Works, Guildford, Surrey. "Standardisation of parts—interchangeability—unit construction" are part of the Company's design policy.

TYER & CO. LTD.
PERRAM WORKS, MERROW SIDING,
NR. GUILDFORD, SURREY

Telephone: Guildford 2211/3

Telegrams: Switchmen, Guildford

A member of The Southern Areas Corporation Group of Companies



Visitor's Library

LONDON is large and complex. London Transport tries to make it easy and simple. Some or all of the following publications will help:—

VISITOR'S LONDON

The official guide to places of interest in London and its countryside in alphabetical order with illustrations, pocket Underground and bus maps and 'How to Get There' (see below). Over 60,000 copies sold. Price 5/-

HOW TO GET THERE

A pocket index to over 400 places of interest with full details of opening times, admission prices and travel instructions. Price 6d.

COUNTRY WALKS

Twenty rambles carefully described with photographs, ordnance survey maps, notes on places of interest and travel instructions. Price 3/6

CHRISTOPHER WREN

His work in and around London with travel instructions and a map of his City churches. Price 6d.

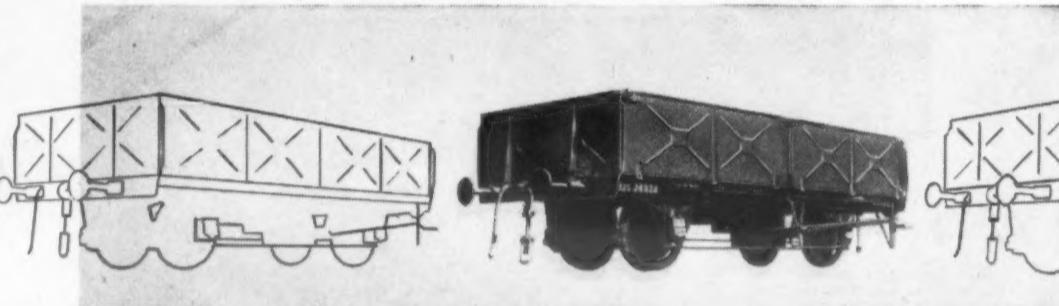
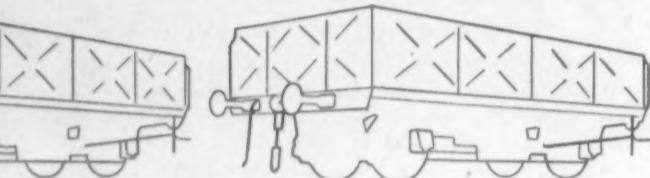
FREE MAPS AND LEAFLETS

London Transport issues maps of all its services and many leaflets dealing with historic houses, art galleries, museums, and such public spectacles as the Changing of the Guard.

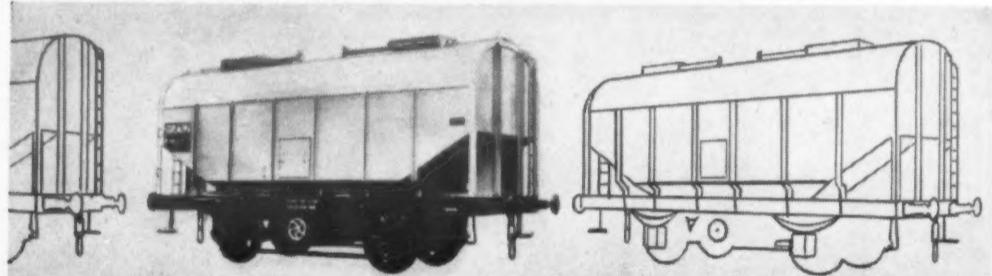
All London Transport publications are available at the Travel Enquiry Offices at Piccadilly Circus and St. James's Park Underground Station, or from

**The Publicity Officer, London Transport,
280 Marylebone Road, London, N.W.1.**

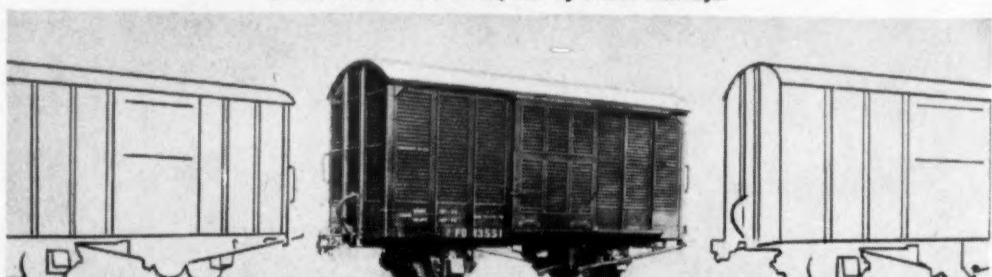
Travel enquiries—Telephone ABBey 1234



The F.J.S. Low-sided Wagon, as supplied to Queensland Government Railways, Australia.



The 20-ton Bulk Grain Van, used by British Railways.



The F.D. Louvre Van, used by Western Australian Railways.



British Railways 57-foot Utility Van.

A capacity of
1,400,000 tons

THE CARRYING CAPACITY of the rolling stock produced by Pressed Steel in the past eight years adds up to 1,400,000 tons. This figure is made up of carriages and wagons of all types, for all gauges, at home and overseas. You see some of this rolling stock here.

The figures prove that Pressed Steel have tremendous productivity—and a rich store of engineering experience. But they tell only part of the story. For they do not show the progressive approach of our design staff, the quality of engineering that goes into each job, and our record for prompt delivery. Nor do they show how constant, intensive research has made Pressed Steel ready to play an active part in the future development of the world's carriages and wagons.

PRESSED STEEL COMPANY LIMITED



RAILWAY DIVISION, PAISLEY, SCOTLAND.
London Office: RAILWAY DIVISION,
47 VICTORIA STREET, LONDON, S.W.1.
Head Office: COWLEY, OXFORD.
Manufacturers also of motor car bodies,
Prestcold refrigeration equipment and
pressings of all kinds.

NEWS FROM ALL QUARTERS

Last Colombo Trams to Go

Close down of the Colombo municipal tramway service has been fixed for June 30. Only one route now remains.



More French Railway Electrification

French Railways has introduced electric traction on the 25,000-volt 50-cycle a.c. system on two more sections of line in North-Eastern France: Conflans—Pagny-sur-Moselle (21 miles) and Metz—Lerouville—Bar-le-Duc—Revigny (72 miles).



Rhodesian Transport Experiment Fails

The Northern Rhodesian Development Commission has decided to withdraw refrigerated goods vehicles put on the road in November to help African fisherman at Lake Mweru send fresher fish to the Copperbelt. Africans objected on the grounds that they preferred to run their own transport.



N.U.R. Wage Claim Presented

The claim for improved wages by the National Union of Railwaymen was presented to the B.T.C. at a meeting on May 6. The Commission promised to give its considered reply in four weeks' time. The other two railway unions have dissociated themselves from the N.U.R. claim. The claim was pressed on the ground of the cost of living, not on a reduction of earnings due to railway economies.



Waterways Redevelopment Decisions

The Inland Waterways Redevelopment Committee which was recently set up by the Minister of Transport and Civil Aviation to help in the promotion of schemes for the treatment of canals which cannot economically be maintained for commercial transport has decided that the Stratford-on-Avon Canal (southern section), the Pocklington Canal, and the Staffordshire and Worcestershire Canal should receive first consideration. This decision was taken by the committee at its first meeting. In Scotland the committee will give attention to the Monkland Canal as soon as possible.



A.E.U. to Leave Bus Wages Council

The Amalgamated Engineering Union national committee has decided, against the advice of the executive, that the union should withdraw from wage negotiations conducted by the National Council for the Omnibus Industry, which represents the provincial agreement bus companies, and to conduct separate negotiations on behalf of the skilled maintenance men. Five other unions, the National Union of Railwaymen, the Electrical Trades Union, the National Union of Vehicle Builders, the Transport and General Workers' Union, and the National Union of General and Municipal Workers are represented on the council. The decision was based on a feeling of an "apparent lack of drive to improve or even maintain the relative position of skilled maintenance workers." The blame for that was attributed by the sponsors of the move to the A.E.U. associating with general workers' unions in the N.C.O.I.

Grimsby-Immingham Railway Report

The Grimsby and Immingham Electric Tramway should be maintained for the time being, the East Midlands area Transport Users' Consultative Committee has recommended. Closure of the line is proposed by the Eastern Region of British Railways. The members of the committee made a journey on the tramway and subsequently expressed grave doubts in the report on the possibility of an adequate alternative service being provided under present conditions. The report says there should be a transition period of not more than three years during which the tramway should be supplanted by a bus service. During the time pressure should be brought to bear on the Ministry of Transport to sanction a new direct road between Grimsby and Immingham. It is considered that the alternative bus service at present proposed would cause hardship and inconvenience. (This line has been deleted from the Eastern Region summer timetables, which take effect from June 15.—Editor.)



COMMERCIAL AVIATION

S.B.A.C. and Supersonics

VANGUARD TO HAMBURG

THE Society of British Aircraft Constructors recently made the following statement of policy:

"The report of the Supersonic Transport Aircraft Committee does not examine the economic or prestige aspects of a British airliner travelling at about Mach. 2 in company with a possible foreign airliner travelling at Mach. 3. It was also beyond the scope of the report to examine the impact of the project upon Government policy of support for the aircraft industry's work at large. We have clearly reached the point where it is necessary to define specific directions of effort. Two main directions may be distinguished. First, there is investment in projects at subsonic speeds, where each project can be, and should be, judged primarily by the prospect it offers for sale of aircraft at home and abroad so as to achieve the fullest possible production lines and employment.

"Secondly, there is investment in projects which go into supersonic speeds, where the investment, judged by economic criteria, is less direct, though the indirect elements of research and development, and of prestige, are greater. We hope that it will be possible to pursue both directions of effort. It has to be recognised, however, that no aircraft firm could put risk capital into the development of supersonic airliners on the basis that it must recover costs and make a profit through sales to airlines. To the best of our knowledge, no American aircraft firm is venturing such risks, since the primary cost of development is being borne on account of military aircraft paid for by their Government.

"On the technical side nothing but good can come from active pursuit of the research and development problems associated with the supersonic airliner; from the manufacturers' aspect the financial and economic considerations have not yet been studied. In our opinion, economic and further design studies must be done if the various factors are to be properly assessed. In the years which lie between the present and the time when supersonic transports become available it is almost certain that there will be further substantial buying by the airlines. Unless the British industry can obtain its share of those orders, the possibility of obtaining worthwhile orders for supersonic transports will be seriously prejudiced. We are convinced that a determined drive in the subsonic field must be regarded as a necessity."

First Overseas Flight by Vanguard

The Vickers Vanguard made a notable first public appearance on May 6, flying from London to Hamburg in 73 min.—23 min. less than the airline record set up by a Viscount in 1954. Normal Viscount time for the 470-mile journey is 2 hr. The Vanguard returned the same day in 80 min. This was the first test flight made by the Vanguard under representative airline operating conditions. Its average cruising airspeed during both the outward and return flights was 440 m.p.h. The aircraft, which was the first in B.E.A. livery, was captained by Mr. G. R. Bryce, Vickers' chief test pilot, accompanied by a Vickers crew and Captain A. S. Johnson, B.E.A. Vanguard flight manager.

United-J.A.L. Crew Agreement

United Air Lines and Japan Air Lines have signed a contract under which United will supply flight crews to J.A.L. for transpacific flights between the United States and Tokyo. The United crews will supplement J.A.L. flight staff now being expanded to cover new J.A.L. routes. In addition to its present San Francisco—Tokyo service, the Japanese operator will inaugurate Tokyo—Los Angeles operations on May 29 and a Great Circle route to Seattle on June 27. The contract will run for one year; the first United crews were assigned to J.A.L. early this month. Crews include captains, first officers and flight engineers, and are based at Los Angeles, San Francisco and Seattle.

P.A.A. Operating Revenues

Operating revenues of Pan American World Airways for 1958 were £111,857,150 compared with £111,678,600 in the previous year, it was reported by Mr. Juan T. Trippe, president, in the 31st annual report. Net income for the year, after taxes, was £1,821,430, compared with £2,928,600. Operating expenses in 1958 were up 2.7 per cent to £109,250,000. Despite increased costs of labour and materials, per available ton-mile costs were exactly the same as in the previous year. Decreased earnings resulted from the business recession, the lower load factor, and expenses incurred in the introduction of new jet aircraft. For the second consecutive year no government subsidy was included in reported operating revenues.

★
B.T.C. FARES SCHEME

Interim Decision of Tribunal

In an interim decision issued on May 11 the Transport Tribunal agreed in the main with the proposals for increases sought in the British Transport Commission new passenger charges scheme, although it rejected the scheme as lodged. It stated that it would confirm a scheme which would, *inter alia*, empower the commission to charge rail passengers on lines other than London, Tilbury and Southend lines, an increase in the standard rate from 2d. a mile second class and 3d. a mile first class to 3d. a mile second class and 4½d. a mile first class, as set out in the scheme.

Early morning fares concessions should cease, but it had not been decided whether the obligations should stop at once or continue for a time, or whether the fares specified in the 1957 scheme should be increased. The powers exercisable in the case of the road and rail services of the London Transport Executive should be such as, upon the assumption that there was no significant increase in the general level of costs, would empower the commission to secure that in 1959 the total net receipts should be at the least sufficient to provide a just contribution to the central charges of the commission; and that in 1960 and 1961 the total net receipts should be sufficient to provide a just contribution to the central charges of the commission and surpluses at the rate of about £2,500,000 a year.

The tribunal has asked the B.T.C. to supply it with other information concerning a scale of maximum season ticket rates reducing by half the increase asked for. It will consider any representations in writing concerning its interim decision, and if the commission or any objector desire it will resume the public inquiry, but it will not be prepared to consider any representation which is inconsistent with the interim conclusions.

A GREAT TRANSPORT INDUSTRIALIST



The Late Sir ARCHIBALD J. BOYD

• • • • •

We record with regret elsewhere in this issue the death of Sir Archibald John Boyd who had been chairman of the Metropolitan-Cammell Carriage and Wagon Co., Limited, since January, 1, 1956, when he succeeded Colonel J. B. Neilson, and thus presided over the affairs of the company of which he was managing director from 1934 until his retirement in December, 1953. Born in 1888 and educated at Harrow and Trinity College, Oxford, Mr. Boyd (as he then was) entered the steel works of Cammell Laird and Co., Limited, went through various departments and was assistant London manager of the company in 1913. In August, 1914, he was called to active service as an officer of a Territorial battalion, but in 1916 was recalled from France and became assistant general manager of the new works which had been built by Cammell Laird and Co., Limited, at Nottingham, for the manufacture of shells and afterwards guns. In 1919 he returned to London as assistant manager, becoming London manager in 1921, and a local director of Cammell Laird and Co., Limited, in 1925. In the same year he was elected a director of the Midland Railway-Carriage and Wagon Co., Limited, the Leeds Forge Co., Limited, and the Newlay Wheel Co., Limited, the controlling interest in which had been acquired by Cammell Laird and Co., Limited. When in January, 1929, the Metropolitan-Cammell Carriage and Wagon Co., Limited, was formed as a result of the amalgamation of the carriage and wagon building interests of Vickers, Limited, and Cammell Laird and Co., Limited, Mr. Boyd became a director of the new combined undertaking, with charge of sales and London office. In January, 1934, he became managing director of the company; he retained his seat on the board after relinquishing that appointment. Sir Archibald (he was knighted in the Birthday Honours list of 1950), was chairman of the Patent Shaft and Axle-tree Co., Limited, and a director of Associated Electrical Industries, Limited, Monks Investment Trust, Limited, General Accident, Fire and Life Assurance Corporation, Limited, Bus Bodies (S.A.), Limited, Cammell Laird and Co., Limited, and Metropolitan-Cammell Carriage and Wagon Co., Africa (Pty.), Limited. He was a former chairman of the Railway Carriage and Wagon Builders Association. From October, 1942, to December, 1943, Sir Archibald served as Director-General of Tank Production (upon which his company was largely engaged) in the Ministry of Supply; he was also after the war a member of the Overseas Trade Development Council which was formed by the President of the Board of Trade.

IN PARLIAMENT

The Urban Traffic Problem

REVIVAL OF PUBLIC TRANSPORT

FEARS about the traffic congestion in London and other cities 10 years hence were voiced by Mr. G. R. STRAUSS at the opening of a debate in the Commons on May 7. Mr. Strauss said it looked as though the number of vehicles on our roads would be doubled and the delays quadrupled. It was deplorable that there were many traffic committees for London, but no central authority. None of the committees, he charged, was able to make use of the services of traffic engineers because of this. Must we wait as long for parking meter schemes to go through the approval stages and what did the Minister propose to do to ensure that parking regulations of all kinds were observed? He ought also to take a stronger line about loading or unloading of goods when the streets were full of traffic.

Government policy towards roads fell under four heads, said Mr. H. WATKINSON, in reply. The first is that we must have more roads. The second is we must have better use of existing roads. The third is that we must have better deployment of public transport, and the fourth is we must have better control and co-ordination. Mr. Watkinson went on to refer to urban motorways and said we did not want to get misled into thinking that there was any particular simple solution. There was a mystique about urban motor roads. They were experimenting (he instanced examples) in the limited-access urban road and a "major face-lift" for the Kingston by-pass would be announced in a few days' time. He hoped that before long the L.C.C. would be able to agree to use the Kingsway tramway subway as an underpass.

U.S.A. Falls Back on Public Transport

It is an interesting commentary upon the importance which M.P.s attach to traffic matters that Mr. G. R. H. NUGENT, Joint Parliamentary Secretary, suffered the indignity of almost seeing the house counted out when he rose to reply at 6.40 p.m. Mr. Nugent referred to American experience. There, he said, they thought that they would be able to solve their traffic problems in the cities by building vast new urban motorways, freeways, right into the heart of the cities.

Today, no forward-thinking traffic engineer in America held that view. It was realised that a public transport system was basic to keeping the centre of a city alive, and that whatever great new roads might be built, they cannot carry more than a fraction of the total commuting traffic in and out of the cities. Today, authorities in the American cities were making desperate efforts to revive the public transport systems which had been allowed to languish over the last two decades, and they were having a difficult time in doing so.

Marble Arch—Aldenham Motor Road

As examples of forward planning he could tell the house that there was planning in progress on links from the London-Birmingham motor road into both cities. That at Birmingham would feed into the near inner ring road and in London it would run from Aldenham (end of the St. Albans by-pass) to Marble Arch and would be a motor road, costing some £30 million. Urban motorways were going to cost £4 million a mile. There was a scheme to give complete motor road treatment to Newport, a medium-sized town.

He mentioned that the London Travel Committee had set up a traffic sub-committee which was already doing traffic engineering. It had formed what it called an "attack group," which was staffed by trained engineers from the Ministry. It had the full co-operation of the police, the local authorities and all others concerned. It was trying to study some new ideas on buses. There were possibilities in having more shuttle bus services in the congested areas, in having buses waiting at certain points where they could be drawn into the stream in order to pick up the queues quickly. All these things were being studied.

On parking he mentioned an order extending meter schemes to 10 provincial cities. Unless they resolutely pressed on with meters people would risk fines rather than find off-street parking. The proof was the large new 1,000-car multi-storey parking site erected by Selfridges behind Oxford Street. Despite cheap all-day rates it had never held more than 500 cars. In future they would have to ensure that where large sums of money were spent on new roads parked vehicles were not allowed. They were going to put the case for a London traffic authority to the present Royal Commission "verbally and very powerfully."

Inadequate Tax Relief in Finance Bill

When clause 10 of the Finance Bill (which provides relief of excise duty on public service vehicles) was reached on Monday this week, Mr. E. DAVIES complained that the excise duty concession benefited large operators and those in urban areas rather than operators of unremunerative rural bus services. Sir ROBERT CARY (who is chairman of Lancashire United Transport, Limited) referred to the position of companies operating public service vehicles. They had had their profits tax raised from 3 per cent to 10 per cent. That imposition had, in the case of the fleet which he operated, cost something like £8,500. The concession the Chancellor had now made would yield about £8,100.

The Chancellor of the Exchequer, Mr. D. HEATHCOAT AMORY, said the Government had been most concerned about the decline in recent years of the number of bus services in rural areas but he was sorry to say that no suggestion to help in a more substantial way, other than the one he had adopted this year, had yet been made that seemed practicable. It had been suggested that he should have made a reduction in or abolished the oil duty for buses. He had looked at that carefully but he was sorry to have had to decide against it. To have made any noticeable effect on the cost of living would have cost more money than he could afford this year. The clause was agreed to.

Rural Bus Inquiry to be Made

Mr. C. OSBORNE asked the Minister of Transport if he was aware that the closing down of rural bus services in Lincolnshire was causing great hardship to village people; and would he set up a committee to investigate all the aspects of rural transport and so help to retard the drift of population from the smaller villages to the towns. Mr. H. WATKINSON replied that he very much hoped that the reduction in vehicle tax would "help substantially to arrest the decline."

Subsequently he announced that he had decided to set up a small committee to review trends in rural bus services. Its composition and terms of reference would be announced in the near future.

SUCCESS STORY!

for B.U.T. powered
MULTI-CAR DIESEL TRAINS
operating on British Railways

BRADFORD - LEEDS - HARROGATE

Annual receipts under steam of £23,000
increased under diesel multiple units to £116,000

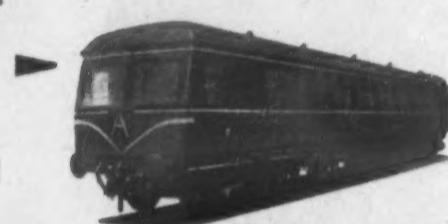


EDINBURGH - GLASGOW Inter City

During the first year of operation, this diesel service carried 700,000 extra passengers.

NEWCASTLE - MIDDLESBROUGH

In 1955 deficit of movement costs of - £10,000
by 1958 becomes a surplus with diesel of + £137,000



BRITISH UNITED TRACTION LTD. 96 PICCADILLY, LONDON, W.1

The World's Largest Suppliers of Diesel Train Units.

Examples of improved receipts quoted by the Minister of Transport and Civil Aviation to the House of Commons on Thursday, December 11th, 1958.



Rear independent hydraulic stabilizer jacks down. Load to be raised to Unit Deck.



Showing load being raised by retraction of hydraulically operated lifting arm rams.

LETTERS TO THE EDITOR

Tramcar Preservation

The Editor is always glad to receive letters from readers on subjects germane to the transport industry, but these should be written as concisely as possible. The opinions expressed therein must not, however, be regarded as having editorial endorsement. Where correspondents desire to use a nom-de-plume, it is essential that the Editor should be informed of the name and full address of the writer as indication of good faith.

SIR.—Regarding the preservation of tramcars (MODERN TRANSPORT, April 18) "Transport Sentinel" might be interested to learn that Leeds Corporation, through its museum's department will be preserving one 1930-built car—a single-truck Horsfield. It is indeed a matter of regret that A.C.C. Feltham is not to be kept and restored, but London enthusiasts may be planning for this, as it seems the matter now rests with them. Obviously the Leeds and District Light Railway people are hoping to purchase from the transport department a Leeds-designed vehicle—a 1924-built single truck fully enclosed Chamberlain car is the target.

In this instance, it would be perhaps unwise to criticise the local corporation transport department for not offering free a Feltham car. We are already very grateful for their recent gift of ex-L.C.C. No. 1 to the B.T.C. Museum. This fine car looks like remaining as the one example of a "modern" equal-wheel bogie car which will remain for preservation.—Yours faithfully,

MICHAEL OWEN,
28 Rotherwick Road, N.W.11.

SIR.—I would like to respectfully point out one or two slight errors in the letter from "Transport Sentinel" in your issue of April 18. The Tramway Museum Society already exists, whose objects are the preservation of examples of British tramway history, and under this heading come tramcars of all ages and types including cars of modern design.

Rather naturally the society's first concern was the older cars as these were fast becoming extinct. Southampton 45, Newcastle 102, and Douglas Head Marine Drive No. 1 were among those acquired. Unfortunately at this point the society's finances were exhausted, and new income was not only insufficient to obtain further cars, but several of those already obtained had to be disposed of through lack of accommodation, this latter proving very elusive, at a price the society could afford despite your correspondent's optimism.

In fairness to tramway operating authorities past and present, many of them have offered cars at no cost but the society has been unable to avail itself of many of these generous gestures due entirely to lack of finance and accommodation. The transport costs alone of a typical four-wheel double-deck tramcar amount to little short of £200. However the society has at last been fortunate in securing a site in South Derbyshire for storing its collection of cars not already provided for. This site is capable of being extended to accommodate further cars if the necessary enthusiasm and finance is forthcoming. Time is short if cars such as those suggested by your correspondent are to be saved and

I invite any of your readers who are interested in this project to support the Society and write to me.—Yours faithfully,

R. J. S. WISEMAN,
Tramway Museum Society,
41 Greenhill Avenue, Sheffield, 8.

A Different Firm

SIR.—We understand that a firm trading under the name of Co-ordinated Roadways, Limited, has gone into voluntary liquidation. We would like it made known to your readers that our organisation, which has been in existence for over 40 years, has no connection whatever with the firm in question. At the time of its original registration we unsuccessfully appealed to the Registrar of Joint Stock Companies against its coinage of our title.—Yours faithfully,

H. PALMER,
Co-ordinated Traffic Services,
24-25 Great Tower Street, E.C.3.

Tramways East of Woolwich

SIR.—The writer of "Road Passenger Transport East of Woolwich" (MODERN TRANSPORT, March 7) is to be congratulated on having unearthed something about a matter which has puzzled a number of us who are interested in tramway history. I refer to the isolated 3 ft. 6 in. gauge line between East Greenwich and Woolwich, the cars for which are known to have been stabled at Lakeland Road, which could only be reached over standard-gauge tracks. Your author says that a transporter was used. Is any photograph or description of this interesting vehicle extant? Did it also carry the horses (assuming it to have been mechanically propelled) or did they go home independently? Perhaps they pulled the transporter. Incidentally, as a small boy, I can clearly remember seeing a horsecar at Tunnel Avenue somewhere between 1906 and 1909. The projection of the electrified line to Rainton Road in 1909 made it possible for cars to use the central repair depot when it was opened in October that year.

There are two points in which I must join issue with your author. The Woolwich and South-East London made contact at Greenwich with the London and not with the Southwark and Deptford. The London's line was originally authorised to the Pimlico, Peckham and Greenwich, which obtained its Act in 1869 and passed under the London company's control in December, 1870. The Southwark and Deptford Tramways Company, incorporated by Act of July 3, 1879, was replaced by the London and Greenwich Tramways Company of 1891 but its lines never got further east than Evelyn Street (Deptford High Street).

The other point concerns the use of trailers. Unless my memory is playing me false I saw trailers on service 44 (Woolwich and Eltham) in 1920. They were shunted in Well Hall Road outside Eltham Church before the line was taken round the corner into Eltham Hill.—Yours faithfully,

CHAS. S. DUNBAR.

15 Sherbourne Road,
Acock's Green, Birmingham, 27.



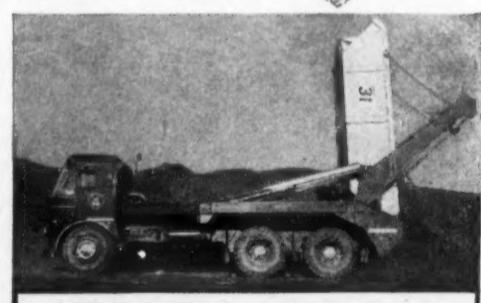
THE STEEL COMPANY OF WALES LTD

adopts

THE BENNES-MARREL Mobile Multi-bucket System

Using the Bennes-Marrel Multi-bucket System, The Steel Company of Wales Limited are convinced that a considerable saving in the handling of a wide variety of materials can be achieved. As a result, they have ordered six complete units on Foden FG.6/20 Chassis for on-site operation.

Consider your own handling problems in the light of this important development.



Positive action hydraulically controlled rams provide easy dumping.

One-man operated . . . an astonishing time and labour saver . . . the Bennes-Marrel Mobile Multi-bucket System brings to the field of bulk materials handling a new standard of efficiency.

Hydraulically controlled solely by the driver from his cab the unit loads and unloads itself with detachable containers, one of which is transported whilst the other is being loaded. This, of course, effects astonishing savings in waiting time and labour costs.

AERO MAINTENANCE EQUIPMENT LIMITED

47 VICTORIA ST., LONDON, S.W.1. ABBEY 6238. CABLES: 'AMBIE LONDON'
A MEMBER OF THE ARUSHA GROUP OF COMPANIES

DERBY-BUILT MAIN-LINE DIESEL LOCOMOTIVES

Sulzer-Crompton Parkinson Type 4 (Cont.)*

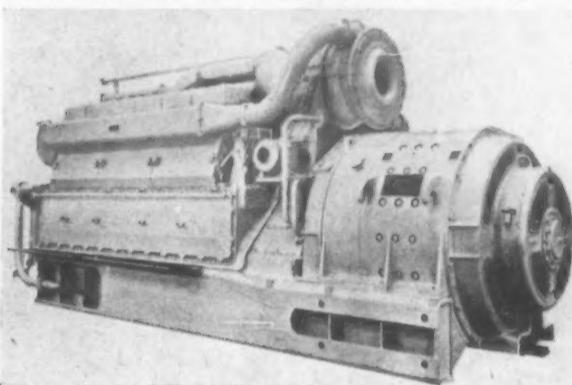
PARTICULAR interest attaches to the carriage warming boilers provided on the Derby-built Type 4 diesel-electric locomotives for British Railways, equipped with 2,300 or 2,500 h.p. Sulzer-Crompton Parkinson diesel generator sets, as the Stone-Vapour units, which can generate 2,750 lb. of steam an hour at 70 lb. sq. in., are fitted with the T.I.A. system of boiler feed water treatment with a hydrostatic doser tank. Water tanks and circuit pipes for boiler feed and engine cooling water are galvanised to prevent corrosion. The engine cooling is a complete by-pass system incorporating self-draining radiators and serves the double pur-

Brothers, but the remaining 137 are being manufactured in the Barrow-in-Furness works of Vickers-Armstrongs (Engineers), Limited, to the order of Sulzer Bros. (London), Limited. A proportion of the engines will be fitted with pressure chargers of Swiss manufacture but the majority will have Sulzer pressure chargers manufactured in the Leavesden works of the de Havilland Engine Co., Limited. The Sulzer twin-bank engine for rail traction applications was supplied in its original form before the last war to French and Rumanian railways where it powered double-unit locomotives of 4,400 h.p. Repeat orders have been received from both of these railways for single unit locomotives of Co-Co wheel arrangement with this type of engine.

The 12LDA28 engine is the largest of the Sulzer LDA28 range of rail traction engines and the cylinders are arranged in two vertical banks of six, each bank with its own crankshaft driving a common output shaft through straight spur gearing. A step-up ratio of 1 to 1.44 is employed in the gearbox to increase the main generator speed to 1,080 r.p.m. at full load; this permits a smaller and more compact generator group. In all other respects the engine design follows the well-known Sulzer practice and line components (pistons, liners, connecting rods and bearings) are identical and interchangeable with the in-line engines—the 6LDA28 (1,160 h.p.) and the 8LDA28 (1,550 h.p.) which are being supplied for British Railways' Types 2 and 3 locomotives.

Crankcase

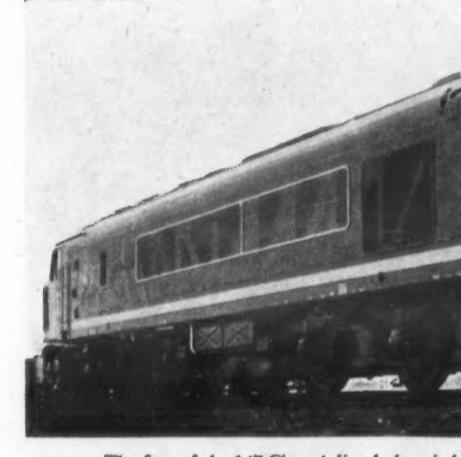
The crankcase and cylinder block are built up of simple steel transverse castings welded to mild



Sulzer 12LDA28 diesel engine with Crompton Parkinson generator group

pose of giving full automatic temperature control, together with complete frost protection at all times. It incorporates a servo-operated thermostatic by-pass together with four-position control whereby the radiator is progressively brought into operation and the radiator fan speed is progres-

sively increased. Filling and draining points are provided on each side of the locomotive to facilitate servicing, and a compressed air connection at 10 lb. sq. in. is also provided for fuelling from a tank wagon if necessary.



The first of the 147 Class 4 diesel-electric locomotives to be built at Derby and Crewe

sively increased. Filling and draining points are provided on each side of the locomotive to facilitate servicing, and a compressed air connection at 10 lb. sq. in. is also provided for fuelling from a tank wagon if necessary.

A fixed carbon dioxide fire protection installation is provided, consisting of three 50 lb. CO₂

EQUIPMENT SUPPLIERS

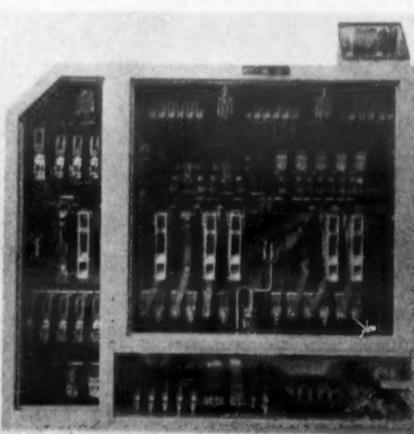
Davies and Metcalfe, Limited, brake equipment; Metalastik Limited, rubber hose suspensions; George Spencer, Moulton and Co., Limited, rubber springs; Allen and Son, Limited, compressed air equipment; Electrical Equipment, Limited, warning horn; J. Stone and Co. (Deptford), Limited, carriage warming boiler; Chilton Electric Products, Limited, boiler circuit control breaker; British Timken, Limited, axleboxes; The Pyrene Co., Limited, fire extinguishers; British Steam Specialities, Limited, miscellaneous valves; Albert Taylor and Sons, Limited, miscellaneous valves; Trico-Folberth, Limited, window wipers; Drus Fasteners Europe, Limited, quick release fasteners; Beckett, Laycock and Watkinson, Limited, windows; Hallam, Sleigh and Cheston, Limited, seats; Serle Radiators, Limited, radiators; Smith's Industrial Instruments, Limited, fuel gauges and instruments; K.D.G. Instruments, Limited, hydrostatic tank gauges; Baldwin, Hepburn and Gale, Limited, TIA equipment; George Turton, Goffs and Co., Limited, buffers; W. Gilmore Smith and Co., Limited, sound insulation; Joseph Pimbley and Son, Limited, fabrications; Musgrave and Green, Limited, fabrications; Weathershields, Limited, cab ventilators; Lockheed Avery-Automatic Products Co., Limited, pipe couplings; Expanded Metal Co., Limited, expanded metals; High Pressure Components, Limited, flexible tubing for TIA equipment; Silentbloc, Limited, anti-vibration mountings; Samuel Wilkes and Sons, Limited, body locks, handles; Cape Asbestos Co., Limited, silencer insulation; Simmonds Aerocessories, Limited, Spire nut grips; Howard Clayton-Wright, Limited, cabber glazing strips and sections; E. H. Jones, Limited, Essex universal couplings; Tomey Industries, Limited, special glass water tube gauge; United Flexible Metallic Tubing Co., Limited, flexible carriage warming pipe; Dewartone and Co., Limited, wedge valves.

James Beresford and Son, Limited, door locks and handles; Flexible Metallic Oil Feed Engineering Co., Limited, flexible metallic tubing; James Walker and Co., Limited, Treadmaster floor covering; Renold Chains, Limited, hand brake chain drive; Dover, Limited, brake hand wheels; Taylor Bros., Limited, wheels; Tecalemit, Limited, greasing equipment; David Brown Industries, Limited, speedometer gears; Zwickly, Limited, filters; Imperial Chemical Industries, Limited, Kinal floor plates; Ferodo, Limited, footstep treads; I. A. Timmins and Son, steel springs; Thomas and la Rue and Co., Limited, Formica, Gresite, Angua, and so on; Herbert Terry and Sons, Limited, spring clips; Exports of James Mills, Limited, Mills drive pins; Hardy Spicer, Limited, universal shafts and joints; Air-Maze, Limited, air filters; Bound Brook Bearings, Limited, oil retaining bushes; Manganese Bronze and Brass Co., Limited, oil retaining bushes; Grelco, Limited, cable terminal blocks; B.M.A.C., Limited, lamp holders.

cylinders which are manually operated from the driving cabs and from external positions accessible from ground level. In addition two 2½-lb. (squeeze grip) CO₂ gas extinguishers and one 2-gallon CO₂ water gas extinguisher are provided in each cab. Fire detectors are installed throughout the locomotive and these operate an alarm bell in each cab. Full provision is made for the installation of a.t.c. fittings. Lifting and jacking points, including towing eyes, etc., are provided at suitable points on the locomotive; these facilities cater not only for workshop needs, but also to facilitate re-railing in case of accidents.

Engine

As already mentioned, the first 10 Sulzer 12LDA28 engines are being supplied from the Winterthur Works in Switzerland of Sulzer



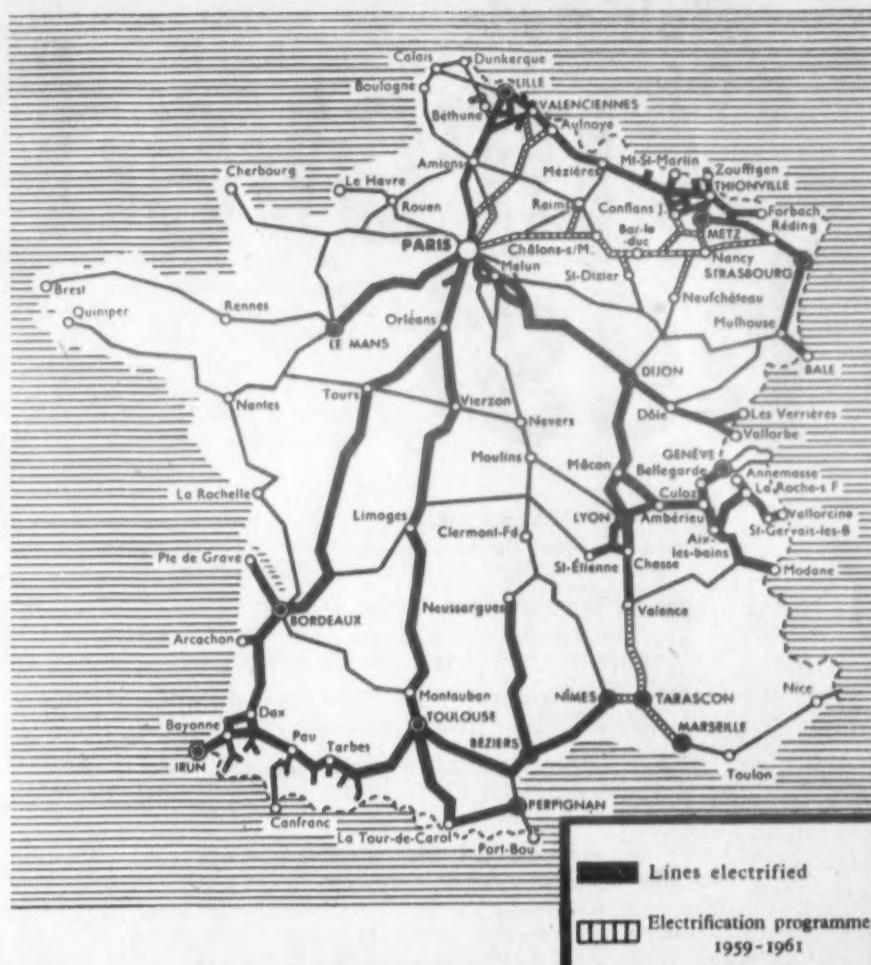
The high tension and low tension control gear manufactured by Allen West to Crompton Parkinson requirements

face. These are precision made and interchangeable without hand fitting or scraping. The fuel injection equipment is of C.A.V. manufacture, but it incorporates the special Sulzer system of timing control. The pressure charger is also of Sulzer design and is of the exhaust gas turbine type. There is only one pressure charger, so avoiding the tuning required when more than one is fitted. The importance of accessibility of engine components has been recognised and all covers have been designed to facilitate maintenance whilst ensuring oil tightness and cleanliness of the engine.

Pump Drives

Pumps for cooling water circulation, lubricating oil priming and fuel transfer are all driven by a single traction type electric motor. These pumps can thus be run independently of the engine to prime the circuits before starting the engine and (Continued on page 14)

ELECTRIC TRACTION IN FRANCE



FRENCH RAILWAYS

179 PICCADILLY
LONDON, W.1

SULZER Diesel Engines 125 years 1834-1959 for BRITISH RAILWAYS



Locomotive No. D1 is the first of 147 Type 4 main line diesel electric locomotives now under construction with Sulzer 12LDA28 twin-bank engines and Crompton Parkinson electrical equipment. These locomotives are the most powerful type to be erected in British Railways workshops under the modernisation programme with some of the engines having a B.S.S. continuous rating of 2,500 h.p. and the balance a rating of 2,300 h.p.

SULZER BROS. (LONDON) LTD.
31 Bedford Square, London, W.C.1

**Shell
Rotella
Multigrade
Oils**

proved best

Shell Rotella Multigrade Oils—the entirely new oils from the world-famous Shell Rotella range—are proving a big success. Reports show that operators are switching to Shell Rotella Multigrade. And no wonder! Shell Rotella Multigrade gives these added advantages over other oils:

FUEL SAVING

Extensive bench and field tests showed that Shell Rotella Multigrade gives a really worthwhile saving on fuel.

REDUCES ENGINE WEAR

Shell Rotella Multigrade flows freely the moment the engine starts and gives immediate engine protection.

PROLONGS BATTERY LIFE

Because Shell Rotella Multigrade makes starting easier it reduces load on batteries.

ELIMINATES SEASONAL OIL CHANGES

Shell Rotella Multigrade has an extended viscosity range—one oil only—summer and winter.

SPECIAL BONUS FOR MIXED FLEET OPERATORS

Shell Rotella Multigrade is suitable for both petrol and diesel engines. This means mixed fleet operators need only buy one oil for all their vehicles.

THERE ARE TWO SHELL ROTELLA MULTIGRADING OILS

Shell Rotella T Multigrade 10W/30—for engines that need "Supplement 1" lubricating oils.
Shell Rotella Multigrade 10W/30—for engines that do not need such a high additive level oil.

Shell Rotella Multigrade Oils

LEADERSHIP IN LUBRICATION



ROAD VEHICLE INDUSTRY

B.M.C. Overseas Expansion

FURTHER development representing business of several million pounds annual value is announced by the British Motor Corporation, Limited, in an agreement reached with S.I.A.M. Di Tella, Buenos Aires, under which the latter will undertake progressive manufacture of B.M.C. vehicles in the Argentine Republic, starting with 1½-litre cars and light commercial vehicles. The agreement will provide the opportunity to re-establish the substantial market for Austin and Morris vehicles that was built up in the immediate postwar years and has since been limited by import restrictions.

Battery-Electric Karrier

CO-OPERATION between Karrier Motors, Limited, and Smith's Delivery Vehicles, Limited, has led to the introduction of a battery-electric articulated tractor designed for a gross weight with semi-trailer of 9 tons which, with a variety of types of bodywork, provides for a payload of 5 to 6 tons. Based on the Karrier



Smith's Electric Karrier tractor for 9-ton gross weight based on Karrier Bantam

Bantam tractor chassis and fitted for battery-electric propulsion by Smith's, the vehicle has been developed to meet the requirements of the Royal Borough of Kensington; it will be on public view at the forthcoming Cleansing Conference at Brighton. The battery-electric has been used by a number of municipal authorities for refuse collection for many years and in this type of frequent-stop work in urban streets its ease of control, economical operation and (particularly in night use) silence have shown to advantage. Its chief disadvantage of range and speed too low for working to distant tips can be overcome by confining the battery-electric tractor to urban work with various specialised semi-trailers and using petrol- or diesel-engined tractors on the distant hauls.

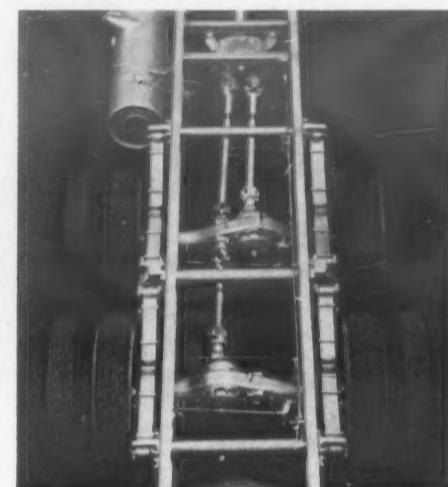
Leyland Maintenance Wallcharts

FIRST two of a new series of wallcharts designed to assist operators in the maintenance of Leyland vehicles are now being prepared and will be available on application to Service Department, Leyland Motors, Limited, Chorley, Lancashire.

Wallchart 101 deals with the maintenance of fuel injectors for all Leyland engines, while Wallchart 102 gives information about undersize and oversize components, shims, packing washers and so on, used when making adjustments.

Double-Drive Reiver

A N additional range of six-wheeled Reiver chassis introduced by Albion Motors, Limited, is identical with the recently redeveloped Reiver except that a double-drive rear bogie is offered. The Reiver is powered by the Leyland O375 diesel engine of 105 b.h.p. driving through a five-speed constant-mesh gearbox, for which an overdrive sixth speed is available optionally. It is designed for a gross weight of 15½ tons, which with a chassis-cab weight of about 4½ tons



Unusual arrangement of transmission shafts on new double-drive Albion Reiver

gives a useful margin for body and 10-ton payload, and is offered with wheelbase lengths of 12 ft. 2 in. (tipper), 15 ft. and 16 ft. 8½ in.

A feature of the double-drive chassis is the method adopted for carrying the drive to the rear axle of the bogie. Drive from the normal propeller shaft is carried to a relay gearbox, which serves to divide the drive between two output shafts, one for each axle, and to house a third differential. The relay gearbox has three-point rubber mounting and the third differential can be locked to provide traction in difficult conditions by operating a control in the cab. Of the two output shafts one goes directly to the leading bogie axle and the other is carried through the leading axle body to the rear axle. Both driving axles are Albion double-reduction units with offset spiral bevel main and epicyclic hub gears.

**MAYBACH
POWER**

COMES TO BRITAIN



Bristol Siddeley are now manufacturing under licence a range of diesel engines from 220 to 2,000 bhp rail traction rating developed by the world-famous German firm of Maybach, who have had 35 years' experience in the

manufacture of diesel traction units. Bristol Siddeley Maybach diesel engines are currently being introduced into British Railways Western Region as part of their modernisation programme.

BRISTOL SIDDELEY

Maybach

DIESEL ENGINES

BRISTOL SIDDELEY ENGINES LIMITED · COVENTRY · ENGLAND

MODERN AIRWAYS and COMMERCIAL AVIATION SECTION

LONDON—MOSCOW LINK

Aeroflot Demonstrates Tu 104A

After a series of delays for a variety of reasons outside the control of the actual airlines concerned the service between London and Moscow which is to be operated by British European Airways and Aeroflot was scheduled to commence on May 14 with the departure of B.E.A. Viscount from London for Moscow via Copenhagen. The first Aeroflot service is due in today (May 16)

accommodation in the old style. The aircraft interior as a whole does not correspond to ideas which are current practice in Western Europe or the United States, but it is not necessarily any the worse for that. The seats are very comfortable and the space available in the tourist seating is certainly more than is normally allowed in Europe or on transatlantic flights—Aeroflot is not a



The Aeroflot Tu 104A arriving at London Airport

and last week the arrival in Britain of a Tu 104A for final proving tests afforded an opportunity to give demonstration flights. The aircraft is an improved version of the Tu 104, which, it should be remembered, was the first jet passenger transport aircraft in regular service apart from the de Havilland Comet 1 and that it has accumulated a very

member of the International Air Transport Association and is thus not concerned with inches anyhow.

Reasonably Quiet

We were aloft for 45 min. and in that time it was possible to admire the cabin service provided by the steward and stewardesses. Demonstration flights are always something of a test since half the passengers always seem to be anxious to move about and carrying trays about in those circumstances is not easy. We would also commend the really excellent coffee. The noise level in the aircraft seemed higher than in the Comet 4 or Boeing 707, although the Tu 104A has only two engines compared with the four of the other machines, but it was not obtrusive and there was very little vibration. Visibility was good and only the rearmost row of seats lacks its own window. The behaviour of the aircraft in flight seemed to be very precise. There is no gainsaying the fact that it requires a long take-off run and that its initial rate of climb is steady rather than spectacular. It was not possible in the time to judge performance at its normal operating altitude and we did not, in fact, go higher than 11,000 ft., but it cruised comfortably at just under 400 m.p.h. which again was well below its reported maximum.

The pressurisation system was functioning quite well, although we were not too certain whether the air circulating system ought not to have cooled the interior more rapidly than it actually did. It would not be unreasonable to say that internally the aircraft is rather more rough and ready than those to which we are accustomed here, but the seats are comfortable.

The aircraft is arranged as a 70-seater with 16 seats in pairs in the forward cabin for first-class passengers and 54 seats in rows of three-and-two in the tourist-class cabin aft. The cabins are separated by a large galley area and aft of the rear one is what can only be described as palatial toilet



Interior of the tourist cabin of the Tu 104A

substantial number of hours on internal routes of the Soviet Union and with C.S.A. the Czechoslovak airline.

The aircraft is arranged as a 70-seater with 16 seats in pairs in the forward cabin for first-class passengers and 54 seats in rows of three-and-two in the tourist-class cabin aft. The cabins are separated by a large galley area and aft of the rear one is what can only be described as palatial toilet

International Helicopter Rally

SUCCESSFUL INNOVATION

HAVING organised five British Coach Rallies with steadily increasing success, our contemporary *Passenger Transport* has turned its attention to helicopters and, with the co-operation of the Duke of Bedford, staged the first public international helicopter rally to be held in

manner. Westland Aircraft was, indeed, well represented, for, apart from one of the manufacturer's own Widgeons which took part in the display and demonstrated its ability to lift a Nobel car from the ground, there was also one operated by Bristow Helicopters, more normally to be seen



Crop-spraying demonstrated by a Hiller of Fison-Airwork and, right, the Kolibrie lands on its transport trailer

Britain in Woburn Park last Sunday (May 10). The organisation of such an occasion is bound to be somewhat tentative, for helicopters still tend to be rather temperamental and unfortunately

operating from the Westland Heliport at Battersea. Demonstrations of crop-spraying were given by a Hiller 12c of Fison-Airwork and also by the N.H.I. Kolibrie, the rather engaging little Dutch



The Westland S55 of B.E.A. waiting passengers; Westland Widgeon lifting a car

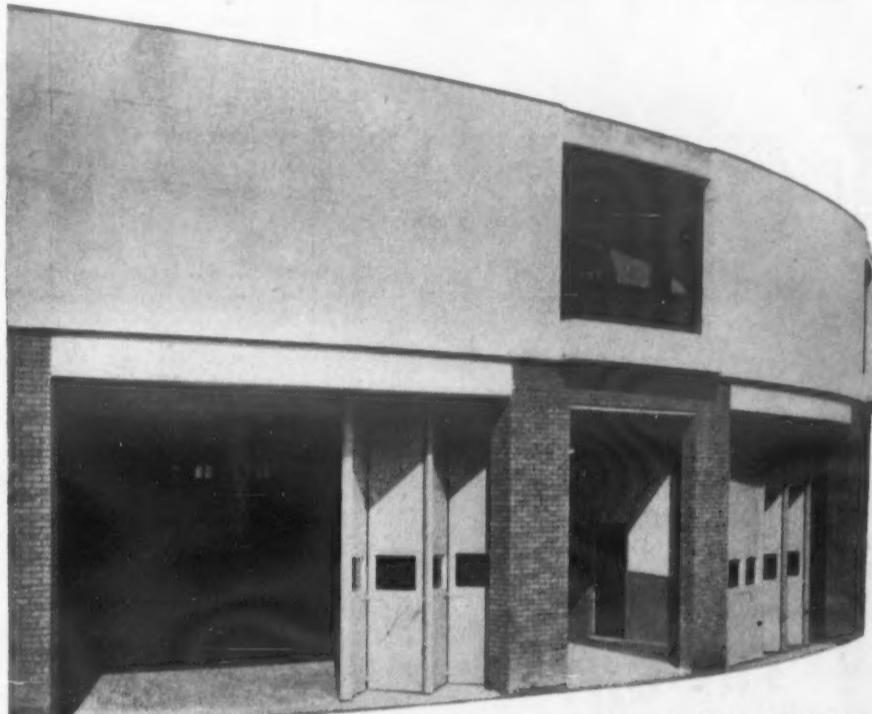
certain machines listed were not able to appear. Nonetheless the glorious weather strengthened the opportunity of bringing home to the general public the capabilities of the helicopter even at this stage of its development and British European Airways carried a considerable number of passengers in its Westland Sikorsky S55, which trundled round over the countryside in a dignified

ram-jet helicopter which pop-pops around with a very high degree of manoeuvrability. While hardly commercial, mention must be made of the very effective display put up by the Army Air Corps, both in its tactical support demonstration with Saunders-Roe Skeeters and Westland Whirlwinds and the individual and formation endeavours by the Skeeters and an Alouette.

FOR MODERN TRAFFIC...

At the handsome new garage erected for the Hants. and Dorset Motor Services Co., Esavian folding and sliding doors have been installed to smooth the flow of buses. Easy to operate, they speed the peak period work, fold back flush and add to the general good looks of the building. Please write for Esavian data sheets.

THE **ESAVIAN** PRINCIPLE
for Folding and Sliding Doors, Windows, Partitions and Screens.



Architect: Alan A. Briggs, F.R.I.B.A.
Chief Architect: The Tilling Association Ltd.

Esavian Ltd., Esavian Works, Stevenage, Herts. Tel. Stevenage 800 • 105 Tottenham Court Rd., London, W.1. Tel. Museum 8772 • Esavian Works, Carlisle, Lancs. Tel. Heyfoss 881

'POP' AND "IMEX" RIVETS MAKE A MAIN LINE CONTRIBUTION TO BRITISH RAILWAYS ROLLING STOCK



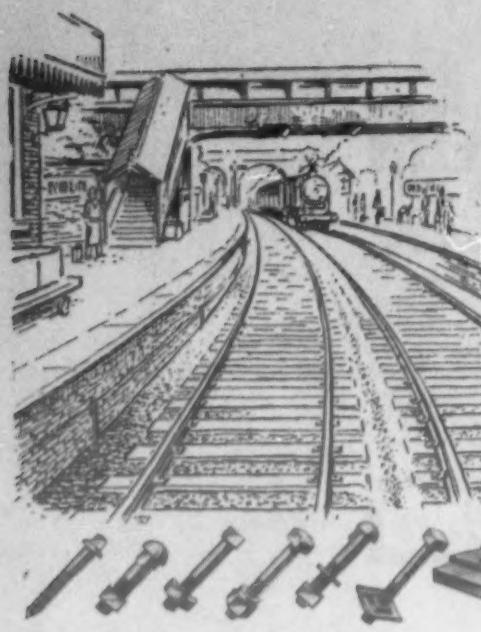
The essential feature of "POP" and "IMEX" rivets is that only one operation, by one operator working from one side of the material only, is required to set the rivet. This speed and ease of setting considerably reduces assembly costs, eliminates damage and distortion of the structure and provides a tight, positive and vibration-proof joint. Investigate their application in your own products—we will be pleased to give any advice you may require.



Main line Diesel Electric Locomotive built by British Railways at their Derby Locomotive Works. Because of their reliability, cost-saving effect and ease of setting, Tucker "POP" and "IMEX" Rivets are used for the fixing of exterior panels and roof. The Geo. Tucker Eyelet Co. Ltd., is proud to make this contribution to the new look in British Railways rolling stock.

Geo. TUCKER EYELET Co. Ltd.
Walsall Road
Telephone: BIRchfields 4811 (9 lines)
Consultants: AIRCRAFT MATERIALS LTD., Midland Road, London, N.W.1
Telegrams: EYELETS, BIRMINGHAM

The trademarks "POP" and "IMEX" are registered in respect of rivets in the United Kingdom and many other countries in the name of the Geo. Tucker Eyelet Co. Ltd.



The strain
just arriving
at Platform Two...
...is easily taken
by

RICHARDS

PERMANENT WAY
FASTENINGS

CHARLES RICHARDS & SONS LTD.
P.O. BOX No. 23, DARLASTON,
WEDNESBURY, SOUTH STAFFS.
Tel: James Bridge 8188 (8 lines) P.B.X.
Wires: 'Richards, Darlaston'

PICKFORDS HEAVY HAULAGE SERVICE
Abnormal Loads • Lifting
MOBILE CRANES FOR HIRE • Branches in all large towns

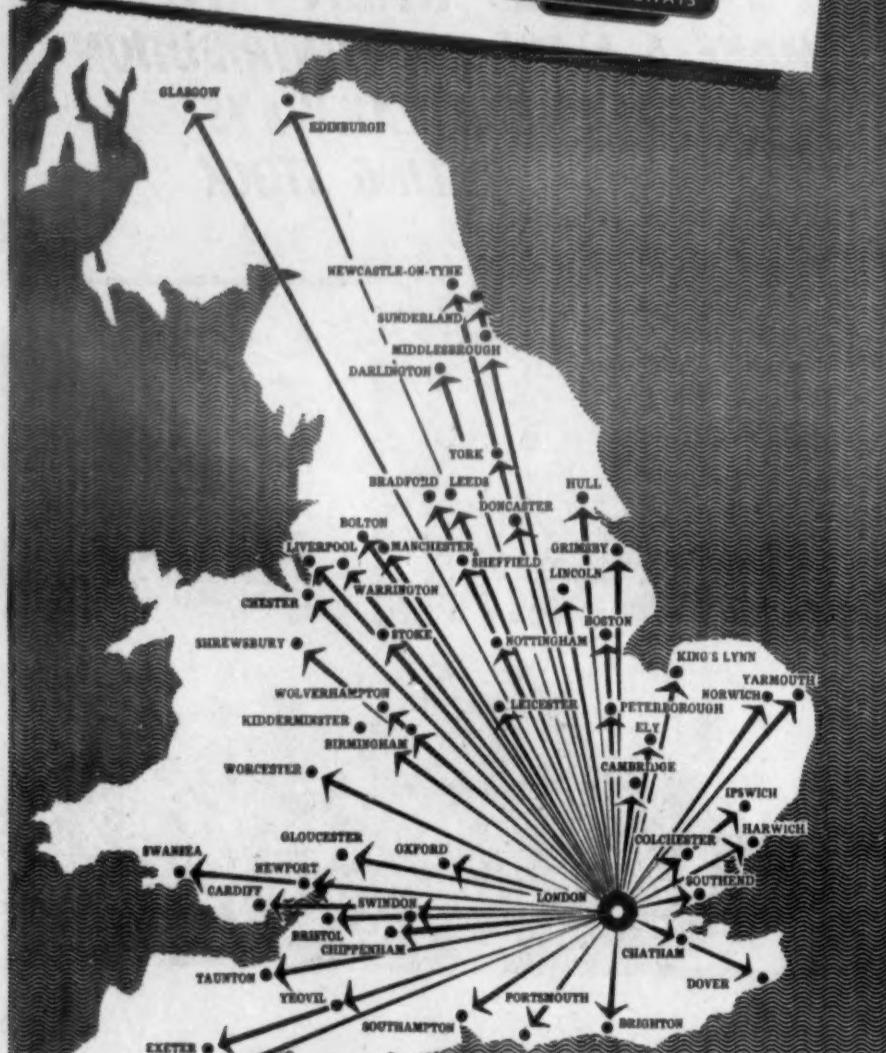
**NEXT-DAY
DELIVERY BY
EXPRESS
FREIGHT**

This map shows some of the many towns to which British Railways Express Freight Services can give next-day delivery for wagon-load traffic. It is a timetable service—and door-to-door transport can be provided. Express Freight charges are competitive with any other



form of transport. For further information get in touch with your local Stationmaster or Goods Agent. He'll supply you with all the details you need.

BRITISH RAILWAYS



**BRITISH RAILWAYS
EXPRESS FREIGHT**

CARGON FREIGHT HANDLING SYSTEM

A Universal Aid to Rapid Turnround

SINCE the Cargon freight handling system, introduced into this country by the materials handling division of Fisher and Ludlow, Limited, of Birmingham, was demonstrated in public in May last year certain minor modifications have been introduced in the light of experience and these were explained at a further demonstration in London last week.

The Cargon system, which is now being marketed by Cargon Transport (Great Britain), Limited, Bordeley Works, Birmingham, 12, is an essentially simple one, it will be recalled. The Cargon

to the vehicle. There is now a single toggle bar on each side of the vehicle, attached to the guide bar. Once the Cargon is in place the toggle bar is hinged over, and clamps engage with the two boards which comprise the load. Tightening a nut by means of a brace provided engages the clamps firmly in position. At the front end the loading board is held against a retainer and at the rear there is a redesigned clamp. The other major improvement concerns the loading board itself, which now has five rows of wheels at 20-in. pitch instead of four. A principal reason for this, it is



Two aspects of the Cargon freight handling system: left, collapsible box Cargons being transferred by hand to rail wagon; right, two Cargon loads of miscellaneous freight secured by a single rope net. (The securing mechanisms seen on this vehicle have since been improved)

itself is a flat loading board, mounted on 15 ball-bearing wheels arranged in rows of three. These enable it to be freely transferred to and from a loading platform and vehicle, road, rail or even aircraft. It is only necessary to lay flat rails to take the wheels and guide buffers along each side to retain the Cargon in its correct position.

Hand Operation

The Cargon unit may be sited, with collapsible sides if desired, and one user in this country, a Dorchester grocer, is using seven insulated Cargon-based containers in conjunction with four road vehicles. The system revolves around the loading or unloading of boards while the road vehicle is kept at work. The normal load of a Cargon is four tons and two can be pushed simultaneously on to or from a vehicle in normal circumstances. A winch is incorporated in the vehicle to wind the Cargon on or off if the load exceeds about five tons or if there is a difference in levels. The board itself is constructed of pressed steel, usually 7 ft. in width to fit a standard class of road vehicle body and comes in multiples of 2 ft. lengths to choice. The vehicle floor is not obstructed by the rails, which are inset, and it is therefore ready to accept normal loading at any time.

Improvements to the system are designed primarily to facilitate the loading of the Cargon

stated, is to fit the Cargon system more readily to freight aircraft, notably the Armstrong-Whitworth Argosy which is now in production and is regarded as eminently suitable for Cargonised freight.

A hand or hydraulic jacking system is fitted to the vehicle at the rear to adjust the floor level to that of the loading platform. Both systems permit one side of the vehicle to be raised higher than the other if necessary. Hinged plates on the vehicle are employed to bridge the gap between it and the platform. To wind a Cargon on board, the driver pays out the wire cable from a winch, which is mounted below the floor at the rear, attaches it to a bracket on the Cargon. The cable is passed round a forward pulley recessed in the headboard. To wind the Cargon off the pulley is withdrawn, being mounted on a transverse sliding bar, and the direction of operation of the cable is thus reversed. Transfer of a loaded Cargon by hand is effected in a matter of seconds. The system is regarded as having global potentialities and successful road-rail transfer experiments have been carried out, using a plate wagon on the railway. It had its genesis in New Zealand, being used for road-air transfer to the Bristol Freighter aircraft on the Straits Air Freight Express ferry between North and South Island across Cook Strait (MODERN TRANSPORT, November 15, 1952).

Derby-Built Diesel Locomotives

(Continued from page 11)

to ensure even cooling of the water jackets, pistons and bearings after stopping. Air is drawn through the Serck radiators by a motor-driven fan mounted in the roof of the locomotive. Tanks are fitted under the radiators to drain the water from the panels as soon as circulation is stopped thus avoiding freezing in the radiator elements in winter.

The lubricating oil is cooled in a Serck heat exchanger mounted on the engine so that no major oil pipes leave the engine. Since the engine cooling water is circulated through the heat exchanger, the temperature of the lubricating oil is automatically controlled. Particular attention has been paid to filtration. The lubricating oil circuit has a full-flow Knecht wire-wound self-cleaning strainer and a high capacity Fram waste-packed by-pass filter. In the fuel circuit there is another full-flow Knecht strainer and a full-flow Purolator paper type filter.

Generator

The traction generator is the largest so far constructed in Europe and, although a proportion of the locomotives will be uprated to 2,500 h.p., there was an adequate margin of capacity inherent in the original design, so that the generator will be unchanged. The main outline dimensions contain two machines which are combined to save space and to economise in weight. The main generator section is a 10-pole machine with a continuous rating in accordance with BS 173/1941 of 1,953 kW, 580 volts, 2,640 amps at 1,080 r.p.m. The auxiliary generator is an eight-pole machine with a continuous rating to BS 173 of 90 kW, 220 volts, 410 amps at any speed from 650 to 1,080 r.p.m.

The generator set is coupled to the synchronising pinion of the Sulzer 12LDA28 double-bank diesel engine and runs at 1,080 r.p.m.—the engine crank-shaft speed being 750 r.p.m. The engine frame is extended to support the generator set, which has a single bearing, the main and auxiliary armatures being mounted on a hollow bottle-shaped cast-steel rotor bolted directly to the synchronising gear take-off shaft which is rigidly mounted in a supporting bearing. The single roller bearing at the end of the generator set is easily accessible and, if necessary, can be replaced without disturbing any other part of the machine. The whole rotor arrangement has exceptional mechanical strength to enable it to act as a flywheel for the diesel engine and to withstand the inherent cyclic variations of torque. The combination of the main and auxiliary sections into a single rotor provides the attributes of minimum length and maximum strength whilst avoiding excessive weight.

In this machine the main generator commutator is at the driving end. The auxiliary generator is partly accommodated within the field system of the main generator without increase to the overall length. The main generator is fitted with compensating windings of special design patented by

Crompton Parkinson. Normally these windings, which are necessary on large traction generators, make it impossible to change a field or interpole coil without disturbing the compensating winding. With the C.P. design, however, each field coil, i.e. self field coil, separate field coil and decompounding and starting coil, can be removed and replaced with the compensating winding in position.

Inspection of Brushgear

High temperature glass insulation is used throughout the generator set and consists of a glass and mica combination without any Class A reinforcement. This type of insulation is eminently suitable for high-temperature operation and has the advantage in the diesel-electric application of withstanding considerable overloads without damage. The brushgear of the main generator is carried on a ring which may be completely rotated by a crank handle and pinion drive engaging with teeth cut in the outer periphery of the ring. With this arrangement it is possible to gain access to all the brush arms for inspection purposes from a working position inside the locomotive engine room. To release the ring for rotation, it is only necessary to remove two flexible connections and a dowel and slacken four nuts, the replacement of the dowel ensuring that the brushgear is correctly set. Wherever possible the brushes and brushgear elements are standardised for both the main and auxiliary generator and are interchangeable between locomotive types.

Rotation for Maintenance

A special barring gear is incorporated to enable the engine to be turned during maintenance operations. This consists of a toothed ring manufactured integrally with the generator fan, and a detachable barring lever which when engaged with the teeth enables the armature to be rotated. The commutator of the main generator is of overhung construction and has a maximum wearing depth of $\frac{1}{8}$ in. The auxiliary generator commutator is of bolted construction similar to traction motor commutators and also has a wearing depth of $\frac{1}{8}$ in.

The design of this largest traction generator has included techniques developed on the smaller machines for the Type 2 and 3 locomotives and includes the provision of field and armature coils fully pressed with resin powder impregnation and the armature coils having main armature insulation carried throughout the complete length of the coil. The armatures are dynamically balanced during manufacture at various stages and finally as finished assemblies.

Reliance Garage (Norwich), Limited, Heigham Street, Norwich, has been appointed York trailer distributor for the County of Norfolk and Ross Garages (Sales), Limited, Penarth Road, Cardiff, York trailer distributor for South Wales.

SOCIAL AND PERSONAL

de Havilland Chairman

MR. W. E. NIXON, F.C.I.S., is to retire on June 30 as chairman and managing director of the de Havilland Holdings, Limited, and as chairman of the de Havilland Aircraft Co., Limited, de Havilland Propellers, Limited, and the Aircraft Manufacturing Co., Limited, also from other de Havilland group directorships. He will be succeeded by Sir Aubrey Burke, O.B.E., M.Inst.T., managing director of de Havilland Aircraft and Airco.

We record with regret the death of Mr. E. Barker, financial controller of Skyways, Limited. He was aged 53.

* * *
Mr. P. Masefield took office last week as president of the Royal Aeronautical Society for the session 1959-60. Mr. Masefield is managing director of Bristol Aircraft, Limited.

* * *
Mr. P. G. Gibbins, M.Inst.T., general superintendent, Central Road Services, London Transport is retiring today (May 16). He is enjoying a voyage to South Africa as a retirement holiday. Mr. Gibbins joined Walthamstow Corporation Tramways as a points boy in 1910; by 1914 he was a depot inspector. He returned to Walthamstow



Mr. P. G. Gibbins



Mr. J. A. McMullen

after war service, in 1926 became chief assistant to the general manager (tramways) and four years later was made operating assistant. He became a district superintendent in 1933 on the formation of the London Passenger Transport Board and in 1935 was promoted to assistant divisional superintendent. He was made divisional superintendent (trams and trolleybuses—Southern Division) in 1941 and was appointed general superintendent (trams and trolleybuses) in 1948. He became general superintendent (Central Road Services) in 1950 under a new divisional organisation then introduced for buses, trolleybuses and trams.

* * *
Drivers employed by the Express Dairy Co., Limited, gained 2,249 medals and awards for safe driving during 1958. The fleet of over 2,500 vehicles of all classes covered 16,500,000 miles during the year and accidents were at the rate of less than one for every 56,000 miles covered.

* * *
We regret to record the death, at the age of 70, of Sir Archibald J. Boyd, chairman (and formerly managing director) of the Metropolitan-Cammell Carriage and Wagon Co., Limited. An extended obituary notice appears on page 9. A memorial service will be held in London on a date to be announced.

* * *
Dr. Albert Lopez Abuin, Argentine Minister of Transport, last week spent a day with London Transport inspecting railway and bus installations. In the course of his visit, he met Mr. A. H. Grainger, deputy chairman of London Transport Executive, and Mr. B. H. Harbour, member of the executive for operations.

* * *
At the annual general meeting of the Public Transport Association the chairman, Mr. T. Robert Williams, referred to the retirement from the council of Mr. W. T. James. He expressed appreciation of the sterling service which he had rendered to the industry; Mr. James has been a member of the P.T.A. council since 1943 and was an outstanding chairman in 1951-52.

* * *
The following staff appointments are announced by the Southern Region of British Railways:

Mr. H. W. F. Rudkin, staff assistant, shipping and Continental manager's department, Victoria, to be staff assistant, chief mechanical and electrical engineer's department.

Mr. T. S. Gamblin, staff assistant (operating) to be joint staff assistant (operating and commercial).

Mr. B. T. Wright, staff assistant (commercial) to be assistant (general purposes), Waterloo.

Mr. C. F. Voysey to be sales assistant (freight), line traffic manager's office (South Eastern Division).

* * *
For those who are not ready in their German, *Pink Champagne* is really Johann Strauss's *Die Fledermaus* without tears. At the end of last week, this adaptation by Eric Maschwitz and Bernard Grun was presented at the Scala Theatre by the London Midland Region (London) Amateur Musical Society, with the aid of the Buckhurst Light Orchestra, and a very enjoyable series of performances resulted. Tributes to the principal ladies of the cast were presented at the end of the first night by Mr. David Blee, general manager of the London Midland Region and president of the Society. The absence of the chairman, Mr. E. W. Arkle, as a result of his wife's illness, was greatly regretted.

* * *
We regret to record the death, at the age of 74, of Sir Leonard Brownett, K.C.B., C.B.E., a former Secretary to the Ministry of Transport, director of the National Union of Manufacturers from 1945 to 1953 and latterly remembered in the transport sphere as chairman of the committee popularly bearing his name, composed of representatives of trade and industry and vehicle manufacturers, which pressed for the lifting of the 20 m.p.h. speed limit on heavy goods vehicles. Sir Leonard (he was knighted in 1938) joined the Ministry of Shipping as a deputy director in 1917 and after service in other departments of the Government, succeeded the then Sir Cyril Hurcomb as Secretary at the M.O.T. in 1937.

Mr. G. Smith, stationmaster, Glasgow Queen Street, has been appointed stationmaster, Glasgow Central, Scottish Region, B.R.

* * *
Mr. G. R. Evans has been appointed commercial superintendent in the department of the Continental traffic and shipping manager, Eastern Region, B.R. The position is a new one.

* * *
We record with regret the death of Mr. F. E. Wentworth-Shelds, O.B.E., docks engineer of the L.S.W.R. and the Southern Railway from 1909 to 1936. He was 89 and had been president of the Institution of Civil Engineers in 1944-45.

* * *
As already announced, Mr. L. G. Burleigh retired as transport officer of Imperial Chemical Industries, Limited, on April 30 and was succeeded by Mr. J. A. McMullen, O.B.E., who joined the central transport department of I.C.I. in 1948. He was educated at Sedbergh and St. John's College, Cambridge, where he was foundation scholar and obtained first-class honours in the mechanical sciences tripos in 1932. He then entered the service of the London Midland and Scottish Railways as a traffic apprentice obtaining a variety of experience, including a year with the Pennsylvania Railroad in America. Subsequently he toured North

keeping trains moving



Photographed by courtesy of London Transport Executive

One of the new London Transport "Silver" trains fitted with the latest type of Westinghouse Electro-Pneumatic Brakes which will be fitted also on the 76 7-car trains of this type now on order for London Transport.

On intensive service electric railways, such as the London Transport System, where the maintenance of a density of traffic unequalled anywhere else in the world demands operational control of the highest order, the dependability and effectiveness of equipment is of first importance.

Since the earliest days of these London Underground and Tube Railways

 **WESTINGHOUSE** 
Brakes

HAVE BEEN GIVING THIS SERVICE

The brakes were designed and made in England by:
Westinghouse Brake and Signal Co. Ltd., 82 York Way, London, N.1

Associated in India with
Saxby & Farmer (India) Private Ltd., Calcutta Westinghouse Brake (Australia) Pty. Ltd., Concord West, N.S.W.
Associated in South Africa with Westinghouse Brake & Signal Co. S.A. (Pty.) Ltd., Johannesburg
Agents—Bellamy & Lambie, Johannesburg



Inauguration of the new private automatic branch telephone exchange, the first of its class with subscriber trunk dialling, at the North Eastern Region headquarters

Mr. T. H. Summers, chairman of the North Eastern Area Board, speaks to Sir Brian Robson, who is in Brussels. Left to right: The Sheriff of York, Alderman L. Daley, Messrs. C. O. Boyce, managing director, Automatic Telephone and Electric Co., Limited, T. H. Summers and H. A. Short, general manager, North Eastern Region

The Worshipful Company of Carmen has awarded the VIVA shield, gold medal and citation for 1958 to the de Havilland Comet. Each year the shield, which is held for 12 months, is presented for the most outstanding contribution to British transport. The presentation will take place at the company's July court meeting.

* * *
Mr. J. H. Webster, hitherto divisional accountant, has been appointed divisional stores officer, South Eastern Division, B.R.S., vice Mr. B. W. Tyler, retired, and Mr. E. Moffatt, assistant divisional accountant, Pickford's Division, has been made divisional accountant, South Eastern Division. Mr. Webster was articled to chartered accountants in Glasgow. His first appointment with British Road Services was as divisional accountant for the Eastern Division in 1948 and he held this position until moving to the corresponding post in the South Eastern Division in 1955. Mr. Moffatt was with R. G. England, of Clerkenswell, E.C.1, which was taken over by Carter Paterson and Co., Limited, in 1935. He later held appointments in the accounts department of Carter Paterson and the Hays Wharf Cartage Co., Limited. In 1949 he became audit officer attached to the South Eastern Division of B.R.S. and took his last post in 1953.

CLASSIFIED ADVERTISEMENTS

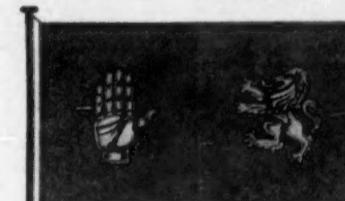
Semi-Display

Semi-display advertisements can be inserted in the classified columns of MODERN TRANSPORT.
Rate: 45s. per single column inch.

CLASSIFIED ADVERTISEMENTS
MODERN TRANSPORT, 3-16 WOBURN PLACE, LONDON, W.C.1

ANGLO-CONTINENTAL CONTAINER SERVICES

(LONDON) Ltd. and (BELFAST) Ltd.



House flag flown by ships of A.C.C.S.

● DAILY SAILINGS

* * * *

● ENQUIRIES INVITED

ENGLAND, SCOTLAND & N. IRELAND

Ports of Shipment being: Preston (Lancs.), Larne (Co. Antrim) and Ardrossan (Ayrshire)

BELFAST: 35/9 Middlepath St. Belfast 59261/5

LARNE: (Co. Antrim) Bay Road. Larne 2331/2

PRESTON: (Lancs.) The Dock. Preston 86742/4

MANCHESTER (2): 270/1 Royal Exchange Buildings. Blackfriars 9287/9

BRISTOL (1): 61 Park St. Bristol 25435/6

ARDROSSAN: (Ayrshire) Harbour Street, Ardrossan-Saltcoats 1911/2

GLASGOW (C.2): 10 Bothwell St. City 6997/8

LONDON: (Depot) Elland Rd., S.E.15. New X 4885/7

LONDON: (Offices) 79 Dunton Rd., S.E.1. Bermondsey 4881/4

IMPORTANT CONTRACTS**More B.R.S. Orders**

AMONG other orders for medium-load vehicles received by Transport Equipment (Thornycroft), Limited, since removal of purchase tax from goods chassis is one from British Road Services for a "substantial number" of Thornycroft diesel-engined articulated tractors with Scammell automatic coupling and brake gear. Bristol Commercial Vehicles, Limited, is to build 51 maximum-capacity articulated vehicles, which will be equipped with the outstanding new Gardner 150-h.p. 6LX diesel engine, for B.R.S.

Derbyshire Black Spot to Go

Derbyshire County Council has awarded a £23,000 contract to Percy Bilton, Limited, London, W.1, to construct a dual carriage-way at Portway Head where the Ashbourne road meets the Nottingham—Derby—Stoke roads. This will eliminate a notorious accident black spot.

Austrian Locomotives for Iron Curtain Countries

The Austrian Simmering-Graz-Pauker concern is to supply an as yet unspecified number of 3,200-h.p. electric locomotives with top speeds of 78 m.p.h. to Poland for use as general-purpose locomotives. Electric fittings will be by the Geneva firm of Secherot. Another Austrian firm, Jenbacher Werke, Jenbach, has announced that during the course of this year it is to supply 20 600-h.p. diesel locomotives to the Soviet Union.

British Refinery Equipment for Mexico

British Oil Equipment Credits, Limited, the newly formed subsidiary of the Council of British Manufacturers of Petroleum Equipment has successfully negotiated an agreement with Petróleos Mexicanos (PEMEX) for the supply of three and a half million pounds' worth of petroleum equipment in connection with the new extension to the Minatitlán Refinery in Mexico. PEMEX is shortly opening an office in London.

£100,000 Gearbox Order

Despite strong competitive bidding from Germany, the David Brown automobile gearbox division has just secured an order for gearboxes valued at over £100,000 from a leading North of England commercial vehicle builder. Four types of gearbox, three of them five-speed units and one 10-speed, are included in the order and all are for heavy classes of commercial vehicle.

New Eastern Region Contracts

The Eastern Region of British Railways announces the following contracts:

Weller Bros., Limited, Sheffield, 3, for renewal of part of timber walling on River Lee between Canning Town and Bow Creek.

Spanner Boilers, Limited, Bracknell, for three 10,000 lb./hr. horizontal oil-fired boilers for Stratford locomotive and carriage works.

Alex. Findlay and Co., Limited, Motherwell, for steelwork for reconstruction of superstructure of bridge over Coburn Road between Bethnal Green and Stratford.

Southern Region Contracts

Recent contracts placed by the Southern Region of British Railways include:

The Cleveland Bridge and Engineering Co., Limited, London, S.W.1, for new footbridge at Victoria.

Meridian Airmaps, Limited, Shoreham Airport, for aerial surveys at Lancing, Erdice, Eastbourne, West St. Leonards, Brockenhurst, Poole and Lympstone.

James Contracting and Shipping Co., Limited, Southampton, for dredging at Bembrey, Isle of Wight.

Hunting Aerovisuals, Limited, Boreham Wood, for aerial survey at Farnborough, Ashford and Beckenham.

Paikey Air Surveys, Limited, London, W.1, for aerial surveys at Basingstoke, Winchester and Brockenhurst.

The Cenvention Co., Limited, London, S.E.11, for foundation piling for Sherborne signalbox.

Recent Commer Orders

An order for 15 Commer Avenger passenger chassis placed by Southdown Motor Services, Limited, follows one for a similar number of vehicles fitted with Burlingham 35-seat coach bodies now in service with the company. All 30 chassis incorporate the Rootes two-stroke diesel engine, overdrive and air-pressure braking and the 15 now ordered are to have Harrington coachwork of generally light-alloy construction with glass-fibre reinforced plastics in front and rear ends. Among orders recently placed with Commer Cars, Limited, for goods vehicles are one for 24 forward-control diesel 7-tonners for the National Coal Board and 30 7-tonners for Charrington, Gardner, Lockett and Co., Limited.

TENDERS INVITED

THE following items are extracted from the Board of Trade Special Returns Service of Information. Inquiries should be addressed quoting reference number where given, to the Export Services Branch, Board of Trade, Lacon House, Theobalds Road, London, W.C.1.

May 22—Ethiopia.—Imperial Highway Authority for two diesel-engined ARTICULATED TRACTORS (20,000 lb. g.v.w.) and two 3,000-gal. SEMI-TRAILER TANKS. Tenders to the Imperial Highway Authority, P.O. Box 1770, Addis Ababa. (ESB/10481/59.)

May 25—Formosa.—International Co-operation Administration for two diesel-powered CONCRETE MIXERS and three 4-cu. yd. TIPPING LORRIES complete. Tenders to the Central Trust of China, Purchasing Department, 68 Yen Ping Nan Road, Taipei, Taiwan. (ESB/11019/59.)

May 25—Greece.—Ministry of Finance for five 6-ton rear-end TIPPING LORRIES with canvas tilts, all diesel-engined. Tenders, with full specifications, to the Ministry of Finance, State Procurement Service, 80 Sokrates Street, 4th Floor, Athens. (ESB/11020/59.)

May 27—Ceylon.—Ceylon Transport Board for 30 8-ton HYDRAULIC JACKS, 4 in. to 24 in. height, and 60 8-ton HYDRAULIC JACKS, 6 in. to 30 in. height, all of trolley floor type on castors. Tenders to the Chairman, Tender Board, Ceylon Transport Board, Kirula Road, Narahenpita, Colombo. (ESB/9814/59.)

May 28—Ethiopia.—Imperial Highway Authority for two six-by-four LORRY-MOUNTED 1 cu. yd. SHOVELS OR CRANES (80-ft. boom of 36,000-lb. lift at 20 ft.) with separate diesel engine and 360-deg. slewing. Tenders to the Imperial Highway Authority, P.O. Box 1770, Addis Ababa. (ESB/10436/59.)

May 28—Pakistan.—Ministry of Railways and Communications for 1000-volt POWER SIGNALLING AND RELAY INTERLOCKING at 25 stations between Karachi and Rawalpindi, the North Western Railway and 32 stations on the sections Chittagong—Mymensingh, Bhaibar Bazar—Tangi and Tangi—Mymensingh of the Eastern Bengal Railways. Photocopies of tender documents from Export Services Branch, B.O.T., price 3s. (ESB/6954/59.)

SHIPPING and SHIPBUILDING**Tees Arrivals Halved**

AAT a meeting of the Tees Conservancy Commission at Middlesbrough, reference was made to a reduction in coasting ships using the River Tees, and this was attributed to increasing competition facing coastal shipping from road transport. It was said that only 64 coastal ships arrived in the Tees in April, compared with 126 a year ago.

Bermuda Ship

ANEW 6,250-ton cargo ship for the Pacific Steam Navigation Company, built in Belfast, is the *Somers Isle* which will join *Eluthera* and *Cien Fuegos* of the same line carrying general cargo on the U.K.—Bermuda run. *Somers Isle* is named after Sir George Somers, founding father of Bermuda, Britain's oldest self-governing colony, which this year celebrates her 350th anniversary.

Crystal-Controlled Marine Chronometer

WITHOUT any appreciable increase in dimensions of the unit, the Sperry Gyroscope Co., Limited, has developed a standard marine chronometer with an accuracy of one part in two million, or 15 seconds a year. Using modern electronic techniques this instrument employs a quartz crystal to control the clock movement. Printed circuit and transistor techniques have enabled Sperry engineers to produce an instrument of a size not much larger than previous types of conventional mechanical chronometers.

Returns to The Ben Line

THE 12,646-ton *Galic*, which has been on-time charter to the Shaw Savill Line for the past five years, was handed back to her owners, The Ben Line, at Liverpool recently. She sailed for North Shields for a major overhaul and will be renamed *Benrines*. After being repainted in The Ben Line colours and after a certain amount of structural alteration and the installation of new equipment, she will join the company's Far East cargo-passenger service. The ship has been manned by a Ben Line crew since 1957.

Combined Steering Controls

COMBINATIONS have now been successfully designed for the Sperry Gyropilot system, which provides all the necessary steering controls from a single combined unit in the wheelhouse, with no fewer than 13 different types of steering gear, in co-operation with the principal steering gear manufacturers in the United Kingdom, Denmark, France, Germany, Holland, Italy, Norway and Sweden. The shipowner ordering new tonnage can thus choose from a wide range of equipment, all of which will provide him not only with the features he requires of the primary system, but also in each and every case with the automatic steering facilities of the Sperry Gyropilot.

Too Few Ship under British Flag

EXPORTERS who showed too little interest in the services provided by British shipping were criticised by Mr. H. A. Short, chairman of Associated Humber Lines, Limited, after the launch of the cargo motorship *Selby* from the shipyard of James Lamont and Co., Limited, at Port Glasgow. Associated Humber Lines believed that the Continental trade would improve, said Mr. Short, but his company was worried about the lack of interest of some British exporters in the services provided under the British flag. "We have built all our new ships in this country despite temptations of price and delivery offered by foreign yards. It is only by manufacturers, exporters and consumers alike supporting British industries and services that we can maintain full employment and production which are the keystones of our national prosperity."

FINANCIAL RESULTS

NOTES on the trading results, dividends and financial provisions of companies associated with the transport industry are contained in this feature, together with details of share issues, acquisitions and company formations or reorganisations.

William Denny and Brothers

Net profit of William Denny and Brothers, Limited, for 1958 is £76,046 (£60,599), and ordinary dividend 12½ per cent.

National Electric Construction

The National Electric Construction Co., Limited, is paying a dividend of 12½ per cent for 1958 (same). Group net profit £104,876 (£99,061), after tax £87,397 (£84,386).

Lisbon Electric Tramways

Lisbon Electric Tramways, Limited, will distribute a final dividend of 4 per cent, free of tax, which makes a total of 6 per cent, free of tax, for 1958.

Beyer, Peacock

Beyer, Peacock and Co., Limited, is paying total of 12 per cent for 1958 on capital increased by acquisitions. A 9 per cent interim is declared for 1959. After tax £119,465 (£314,482), the group net profit is £149,849 (£265,458).

Cunard Steam Ship

The Cunard Steam Ship Co., Limited, now reports an operating surplus for 1958 of £5,670,916 (£6,230,030) and after depreciation, taxation, etc., £899,470 (£1,287,620), dividend on ordinary stock is 8 per cent, gross dividend payable for the year being £1,040,000 (£1,300,000). The fall in the operating surplus is due to the deterioration in cargo freight rates and reduced volume of available cargoes. The passenger ship results showed the anticipated resilience.

San Paulo (Brazilian) Railway

A plan to enlarge the memorandum of association of the San Paulo (Brazilian) Railway so as to allow it to be operated as an investment trust has been announced by Mr. W. B. Common, the chairman. The board feels that this would be the best way to face the inevitably long struggle with the Brazilian Government if the company is to get satisfaction of its various claims. A further repayment of capital is not now considered possible.

Benefits anticipated from the investment trust plan are that cash assets could be re-invested to give a materially larger yield, and that, as investment trust, there would be strong grounds for claiming that a considerably higher percentage of London expenses should rank as a tax charge.

SILVER ROADWAYS LTD.

Reliable Trunk Services to all Parts

BRISTOL

8 The Grove, Bristol 1
BRISTOL 22815

BIRMINGHAM

323 High St. West Bromwich
Staffs.
WEST BROMWICH 3201

LLANELLY

Morris Works, Llanelli
LLANELLY 4302

LONDON 22-24 Bermondsey Wall West, S.E.16 RECOMMENDED 4333

CARDIFF

10 Dumfries Place
CARDIFF 21631

SWANSEA

Exchange Buildings
SWANSEA 54171/5

TAVISTOCK

Harford Bridge
TAVISTOCK 2374

GLASGOW

12 Dixon Street, G.2
CITY 3361

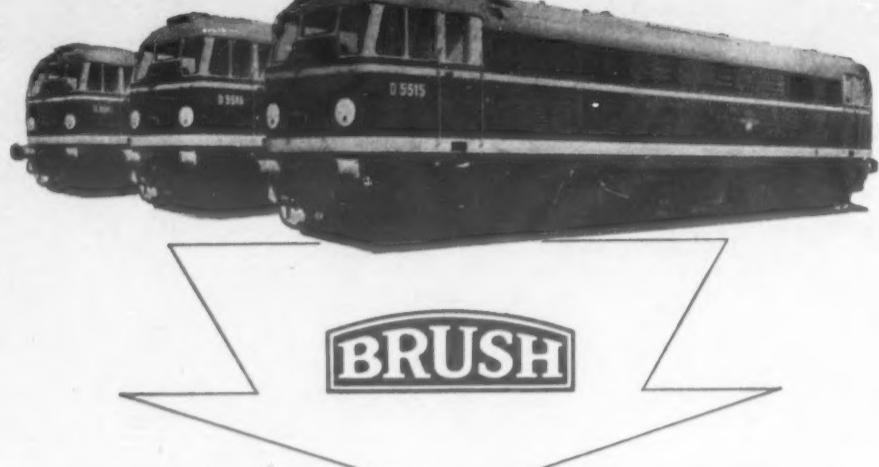
LIVERPOOL

11 Old Hall Street, Liverpool, 3
CENTRAL 6336

NOTTINGHAM

Pavilion Building, Pavilion Road
West Bridgford
NOTTINGHAM 83481

There are more

Type 2**MAIN LINE DIESEL LOCOMOTIVES**

Brush Traction Diesel Electric Main Line Locomotives

of this type operating on British Railways to-day out-number

any other make. 80 of the type illustrated will
be in service before the end of 1959.

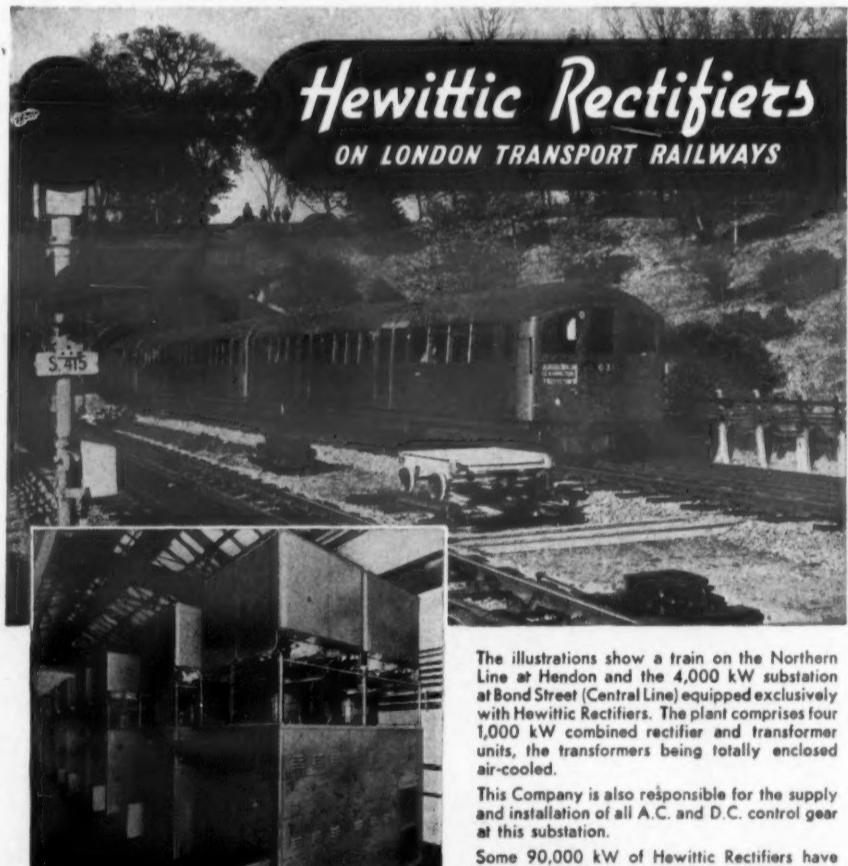


Write for publication No. 71108

BRUSH ELECTRICAL ENGINEERING CO. LTD. LOUGHBOROUGH, ENGLAND

(Member of the Hawker Siddeley Group)

B.T.6.



The illustrations show a train on the Northern Line at Hendon and the 4,000 kW substation at Bond Street (Central Line) equipped exclusively with Hewittic Rectifiers. The plant comprises four 1,000 kW combined rectifier and transformer units, the transformers being totally enclosed air-cooled.

This Company is also responsible for the supply and installation of all A.C. and D.C. control gear at this substation.

Some 90,000 kW of Hewittic Rectifiers have been supplied to the London Transport Executive.

OVER 1½ MILLION KW
IN WORLD WIDE SERVICE

HEWITTIC RECTIFIERS—PUMPLESS—AIR COOLED—UP TO ANY CAPACITY

HACKBRIDGE AND HEWITTIC ELECTRIC CO., LIMITED
WALTON-ON-THAMES - SURREY - ENGLAND
Telephone: Walton-on-Thames 760 (8 lines)

Telegrams: "Electric, Walton-on-Thames"

Overseas Representatives: ARGENTINA: H. A. Roberts & Cia. S.R.L., Buenos Aires. AUSTRALIA: Hackbridge and Hewittic Electric Co., Ltd., 171 Fitzroy Street, St. Kilda, Victoria; N.S.W., Queensland, W. Australia: Elder Smith & Co. Ltd.; South Australia: Parsons & Robertson, Ltd.; Tasmania: H. M. Bamford & Sons (Pty) Ltd. BELGIUM AND LUXEMBOURG: Pierre Paul Bourassa, S.A. BRAZIL: Oscar G. Mora, São Paulo. BURMA: Nobile Manufacturing Co., Ltd. CANADA: Canadian and American Electric Co. of Canada, Ltd.; Montreal; The Northern Electric Co., Ltd., Montreal; Toronto, etc. CEYLON: Envee Eng. Ltd., Colombo. CHILE: Sociedad Importadora del Pacífico, Ltd., Santiago. EAST AFRICA: G. A. Neumann, Ltd., Nairobi. FINLAND: Sähkös Koneelliike O.Y. HELSINKI. GHANA, NIGERIA AND SIERRA LEONE: Glyndova, Ltd., Cairo. GREECE: Charilaos C. Coronos, Athens. INDIA: Steam and Mining Equipment (India), Private, Ltd., Calcutta; Eason Engineering Co., Ltd., Madras. I.RAQ: J. P. Babush Bros., Baghdad. MALAYA, SINGAPORE AND BORNEO: Harper, Gilfillan & Co., Ltd., Kuala Lumpur. NETHERLANDS: J. Kater, E.I. Onderkerk, a.d. Amstel, NEW ZEALAND: Richardson McCabe & Co., Ltd., Wellington. PAKISTAN: The Karachi Radio Co., Karachi. SOUTH AFRICA: Arthur Trevor Williams (Pty), Ltd., Johannesburg. THAILAND: Vichien Phanich Co., Ltd., Bangkok. TRINIDAD AND TOBAGO: Thomas Peake & Co., Port of Spain. TURKEY: Dr. H. Salim Oker, Ankara. U.S.A.: Hackbridge and Hewittic Electric Co., Ltd., P.O. Box 234, Pittsburgh 30, Pennsylvania. VENEZUELA: Oficina de Ingeniería Sociedad Anónima, Caracas.